

PUBLICATIONS

Refereed Journal Papers

1. C. Ordonez, O. Y. Chuy, Jr., E. G. Collins, Jr., and X. Liu, "A Laser Based Rut Detection and Following System for Autonomous Ground Vehicles," *Journal of Field Robotics*, to appear.
2. A. Donate, Y. Wang, X. Liu, and E. Collins, "Efficient Path-Based Stereo Matching With Sub-pixel Accuracy," *IEEE Transactions on Systems, Man, and Cybernetics: Part B*, to appear.
3. I.-Y. Chung, W. Liu, D. A. Cartes, E. G. Collins, Jr., and S.-I. Moon, "Control Methods of Inverter-Interfaced Distributed Generators in a Microgrid System," *IEEE Transactions on Industry Applications*, Vol. 46, No. 3, pp. 1078-1088, May/June 2010.
4. W. Yu, O. Y. Chuy, E. G. Collins, Jr., and P. Hollis, "Analysis and Experimental Verification for Dynamic Modeling of a Skid Steered Vehicle," *IEEE Transactions on Robotics*, Vol. 26, No. 2, pp. 340-353, April 2010. (Available at http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5427035.)
5. E. M. DuPont, C. A. Moore, E. G. Collins, Jr., and E. Coyle, "Frequency Response Method for Online Terrain Identification in Unmanned Ground Vehicles," *Autonomous Robots*, Vol. 24, No. 4, pp. 337-347, May 2008. (Available at [10.1007/s10514-007-9077-0](http://dx.doi.org/10.1007/s10514-007-9077-0).)
6. M. Selekwa, D. Dunlap, E. G. Collins, Jr., and D. Shi, "Robot Navigation in Very Cluttered Environments By Preference-Based Fuzzy Behaviors," *Robotics and Autonomous Systems*, Vol. 56, pp. 231-246, 2008. (Available at <http://authors.elsevier.com/offsetprints/ROBOT1451/119b371f3a3d6db8d7c209a505250ec9>.)
7. C. Ordonez, E. G. Collins, Jr., M. F. Selekwa, and D. D. Dunlap, "The Virtual Wall Approach to Limit Cycle Avoidance for Unmanned Ground Vehicles," *Robotics and Autonomous Systems*, Vol. 56, pp. 645-657, 2008.
8. D. Shi, E. G. Collins Jr., and D. Dunlap, "Robot Navigation in Cluttered 3-D Environments using Preference-Based Fuzzy Behaviors," *IEEE Transactions on Systems, Man, and Cybernetics - Part B*: Vol. 37, No. 6, pp. 1486-1499, December 2007. (Available at <http://ieeexplore.ieee.org/jel5/3477/20463/101109TSMCB2007904581.pdf>.)
9. E. G. Collins, Jr. and A. Homaifar, "HBCUs in Control: Control Programs at Historically Black Colleges and Universities," *IEEE Control Systems Magazine*, pp. 106-112, August 2007.
10. D. Zhang, H. Li, and E. G. Collins, Jr., "Digital Anti-Windup PI Controllers for Variable Speed Motor Drives Using FPGA and Stochastic Theory," *IEEE Transactions on Power Electronics*, Vol. 21, No. 5, pp. 1496-1501, 2006.
11. E. G. Collins, Jr., M. F. Selekwa, R. B. Walker, and S. Palanki, "Parameter and State Variation Estimation for Multi-Equilibria Nonlinear Systems Using a 'Stacked' Model Structure," *European Journal of Control*, Vol. 12, No. 4, pp. 353-364, 2006.
12. M. F. Selekwa and E. G. Collins, Jr., "Design of Multiobjective H_∞ Loop Shaping Control Systems by Fuzzy Logic," *Control and Intelligent Systems*, Vol. 34, No. 1, pp. 45-56, 2006.

13. Y. Zhao, E. G. Collins, Jr., F. Alvi, and D. Dores, "Design and Implementation of Feedback Control for Counterflow Thrust Vectoring," *AIAA Journal of Propulsion*, Vol. 21, No. 5, pp. 815-821, September-October 2005.
14. T. D. Curry and E. G. Collins, Jr., "Robust Fault Detection and Isolation Using Robust l_1 Estimation," *Journal of Guidance, Control, and Dynamics*, Vol. 28, No. 6, pp. 1131-1139, Nov.-Dec. 2005 .
15. Y. Zhao and E. G. Collins, Jr., "Robust Automatic Parallel Parking in Tight Spaces via Fuzzy Logic," *Robotics and Autonomous Systems*, Vol. 51, pp. 111-127, 2005. (Available at [doi:10.1016/j.robot.2005.01.002](https://doi.org/10.1016/j.robot.2005.01.002).)
16. M. F. Selekwa and E. G. Collins, Jr., "Numerical Solutions for Systems of 'Qualitative' Nonlinear Algebraic Equations by Fuzzy Logic," *Fuzzy Sets and Systems*, Vol. 15, No. 3, pp. 599-609, 2005.
17. E. G. Collins, Jr., "Discussion on: 'UDU factored discrete-time Lyapunov recursions solve optimal reduced-order LQG problems'," *European Journal of Control*, Vol. 10, pp. 605-607, 2004.
18. Y. Zhao and E. G. Collins, Jr., "Comparison of Two Approaches to Automated PI Controller Tuning for an Industrial Weigh Belt Feeder," *ISA Transactions*, Vol. 43, No. 4., pp. 611-621, October 2004.
19. Y. Zhao and E. G. Collins, Jr., "Fuzzy PI Control Design for an Industrial Weigh Belt Feeder," *IEEE Transactions on Fuzzy Systems*, Vol. 11, No. 3, pp. 311-319, June 2003.
20. Y. Zhao, E. G. Collins, Jr., and D. A. Cartes, "Self-tuning Adaptive Control for an Industrial Weigh Belt Feeder," *ISA Transactions*, Vol. 42, No.3, pp. 437-450, July 2003.
21. C. Fan, E. G. Collins, Jr., C. Liu, and B. Wang, "Radial Error Feedback Control for Bar Turning in CNC Turning Centers," *ASME Journal of Manufacturing Science and Engineering*, Vol. 125, pp. 77-84, February 2003.
22. M. F. Selekwa and E. G. Collins, Jr., " H_2 Optimal Reduced Order Control Design with Bounds on System Variances Using a Fuzzy Logic Methodology," *IEEE Transactions on Control Systems Technology*, Vol. 11, No. 1, pp. 153-156, January 2003.
23. E. G. Collins, Jr. and M. Selekwa, "A Fuzzy Logic Approach to LQG Design With Variance Constraints," *IEEE Transactions on Control Systems Technology*, Vol. 10, No. 1, pp. 32-42, January 2002.
24. E. G. Collins, Jr. and Y. Zhao, "A Genetic Search Approach to Unfalsified PI Control Design for a Weigh Belt Feeder," the *International Journal of Adaptive Control and Signal Processing*, Vol. 15, pp. 519-534, 2001.
25. E. G. Collins, Jr., and T. Song, "Robust l_1 Estimation Using the Popov-Tsytkin Multiplier with Applications to Robust Fault Detection," the *International Journal of Control*, Vol. 74, No. 3, pp. 303-313, 2001.
26. T. Song, E. G. Collins, Jr., and R. H. Istepanian, "Improved Closed-Loop Stability for Fixed-Point Control Law Implementation Using the Delta Operator," the *International Journal of Robust and Nonlinear Control*, Vol. 11, pp. 41-57, 2001.

27. T. Song, and E. G. Collins, Jr., "Robust H_2 Estimation with Application to Robust Fault Detection," *Journal of Guidance, Control, and Dynamics*, Vol. 23, No. 6, pp. 1067-1071, 2000.
28. E. G. Collins, Jr., and D. Sadhukhan, "Synthesis of Fixed-Architecture, Robust H_2 and H_∞ Controllers," *Mathematical Problems in Engineering*, Vol. 6, pp. 125-144, 2000.
29. E. G. Collins, Jr., and T. Song, "Multiplier-Based Robust H_∞ Estimation with Applications to Robust Fault Detection," *Journal of Guidance, Control, and Dynamics*, Vol. 23, No. 5, pp. 857-864, September-October, 2000.
30. E. G. Collins, Jr., D. Sadhukhan, and L. T. Watson, "Robust Controller Synthesis via Nonlinear Matrix Inequalities," *International Journal of Control*, Vol. 72, No. 11, pp. 971-980, 1999.
31. E. G. Collins, Jr. and T. Song, "A Delta Operator Approach to Discrete-Time H_∞ Control," *International Journal of Control*, Vol. 72, No. 4, pp. 315-320, 1999.
32. Y. Ge, L. T. Watson, and E. G. Collins, Jr., "An Object-oriented Approach to Semidefinite Programming," *Mathematical and Computational Applications*, Vol. 3, pp. 1-10, 1998.
33. E. G. Collins, Jr., and D. Sadhukhan, "A Comparison of Descent and Continuation Algorithms for H_2 Optimal Reduced-Order Control Design," *International Journal of Control*, Vol. 69, No. 5, pp. 647-662, 1998.
34. Y. Ge., L. T. Watson, and E. G. Collins, Jr., "Cost-Effective Parallel Processing for H^2/H^∞ Controller Synthesis," *International Journal of Systems Science*, (Special Issue on Distributed Systems), Vol. 28, pp. 1069-1076, 1997.
35. D. C. Hyland, E. G. Collins, Jr., W. M. Haddad, and D. L. Hunter, "Neural Network System Identification for Improved Noise Rejection," *Int. J. Contr.*, Vol. 68, No. 3, pp. 233-258, Sept. 1997.
36. W. M. Haddad, E. G. Collins, Jr., David C. Hyland, and V.-S. Chellaboina, "Frequency Domain Performance Bounds for Uncertain Structures with Sensor and Actuator Dynamics," *Int. J. Contr.*, Vol. 66, pp. 381-392, 1997.
37. E. G. Collins, Jr. and A. S. Hodel, "Efficient Solution of Linearly Coupled Lyapunov Equations," *SIAM J. Matrix Analysis and Applications*, Vol.18, No. 2, April 1997.
38. E. G. Collins, Jr., W. M. Haddad, L. T. Watson, and D. Sadhukhan, "Probability-One Homotopy Algorithms for Robust Controller Synthesis with Fixed-Structure Multipliers," *International Journal of Robust and Nonlinear Control*, (Special Issue on the Multivariable Stability Margin), Vol. 17, pp. 165-185, 1997.
39. Y. Ge, L. T. Watson, E. G. Collins, Jr., and D. S. Bernstein, "Globally Convergent Homotopy Algorithms for the Combined H^2/H^∞ Model Reduction Problem," *J. Math. Syst. Est. Contr.*, Vol. 7, No. 2, pp. 129-155, March 1997.
40. Y. Ge, L. T. Watson, E. G. Collins, Jr., and D. S. Bernstein, "Probability-One Homotopy Algorithms for Full and Reduced Order H_2/H_∞ Control," *Optimal Control Applications and Methods*, Vol. 17, No. 3, pp. 187-208, July 1996.

41. W. M. Haddad, E. G. Collins, Jr., and R. Moser, "Complex Structured Singular Value Analysis Using Fixed Structure Dynamic D-Scales," *Mathematical Modeling of Systems*, Vol. 2, No. 4, pp. 299-318, December 1996.
42. E. G. Collins, Jr., S. S. Ying, W. M. Haddad, and S. Richter "An Efficient, Numerically Robust Homotopy Algorithm for H_2 Model Reduction Using the Optimal Projection Equations," *Mathematical Modeling of Systems*, Vol. 2, No. 2, pp. 101-133, June 1996.
43. E. G. Collins, Jr., W. M. Haddad, and S. S. Ying, "Reduced-Order Dynamic Compensation Using the Hyland and Bernstein Optimal Projection Equations," *J. Guid. Contr. Dyn.*, Vol. 19, No. 2, pp. 407-417, 1996.
44. E. G. Collins, Jr., W. M. Haddad, and S. Ying, "Nearly Nonminimal Linear-Quadratic-Gaussian Reduced-Order Control Design Initialization," *J. Guid. Contr. Dyn.*, Vol. 19, No. 1, pp. 259-262, 1996.
45. L. D. Davis, E. G. Collins, Jr., and W. M. Haddad, "Discrete-Time, Mixed-Norm H_2/H_∞ Controller Synthesis," *Opt. Contr. Appl. Meth.*, Vol. 17, No. 2, 1996, pp. 107-122.
46. D. C. Hyland, E. G. Collins, Jr., W. M. Haddad, and V.-S. Chellaboina, "Frequency Domain Performance Bounds for Uncertain Positive Real Systems," *J. Guid. Contr. Dyn.*, Vol. 19, No. 2, pp. 398-406, 1996.
47. J. How, E. G. Collins, Jr., and W. M. Haddad, "Optimal Popov Controller Analysis and Synthesis for Systems with Real Parameter Uncertainty," *IEEE Trans. Contr. Syst. Tech.*, Vol. 4, No. 2, pp. 200-207, 1996.
48. Y. Ge, E. G. Collins, Jr., and L. T. Watson, "A Comparison of Homotopies for Alternative Formulations of the L^2 Optimal Model Order Reduction Problem," *J. Comp. Appl. Math.*, Vol. 69, pp. 215-241, 1996.
49. W. M. Haddad, E. G. Collins, Jr., and R. Moser, "Structured Singular Value Controller Synthesis Using Constant D-Scales without D-K Iteration," *Int. J. Contr.*, Vol. 63, No. 4, pp. 813-830, March 1996.
50. W. M. Haddad, V. Kapila, and E. G. Collins, Jr., "Optimality Conditions for Reduced-Order Modeling, Estimation and Control for Discrete-Time Linear Periodic Plants," *J. Math. Syst. Est. Contr.*, Vol. 6, No. 4, pp. 437-460, 1996.
51. E. G. Collins, Jr. and S. Richter, "Linear-Quadratic-Gaussian-Based Controller Design for Hubble Space Telescope," *J. Guid. Contr. Dyn.*, Vol. 18, No. 2, pp. 208-213, March-April 1995.
52. E. G. Collins, Jr., L. D. Davis, and S. Richter, "Design of Reduced-Order, H_2 Optimal Controllers Using a Homotopy Algorithm," *Int. J. Contr.*, Vol. 61, No. 1, pp. 97-126, Jan. 1995.
53. Y. Ge, E. G. Collins, Jr., L. T. Watson, and L. D. Davis, "An Input Normal Form Homotopy for the L^2 Optimal Model Order Reduction Problem," *IEEE Trans. Autom. Contr.*, Vol. 39, No. 6, pp. 1302-1305, June 1994.

54. L. D. Davis, E. G. Collins, Jr., and A. S. Hodel, "A Parameterization of Minimal Plants," *IEEE Trans. Autom. Contr.*, Vol. 39, No. 4, pp. 849-852, April 1994.
55. E. G. Collins, Jr., L. D. Davis, and W. M. Haddad, "Riccati Equation Approaches for Small Gain, Positivity and Popov Robustness Analysis," *J. Guid. Contr. Dyn.*, Vol. 17, No. 2, pp. 322-329, March 1994.
56. E. G. Collins, Jr., L. D. Davis, and S. Richter, "Homotopy Algorithm for Maximum Entropy Design," *J. Guid. Contr. Dyn.*, Vol. 17, No. 2., pp. 311-321, March 1994.
57. W. M. Haddad, E. G. Collins, Jr., and D. S. Bernstein, "Robust Stability Analysis Using the Small Gain, Circle, Positivity, and Popov Theorems: A Comparative Study," *IEEE Trans. Contr. Syst. Tech.*, Vol. 1, No. 4, pp. 290-293, December 1993.
58. D. Zigic, L. T. Watson, E. G. Collins, Jr., and D. S. Bernstein, "Homotopy Approaches to the H_2 Reduced Order Model Problem," *J. Math. Syst. Est. Contr.*, Vol 3, No. 2, pp. 173-205, 1993.
59. S. Richter, L. D. Davis, and E. G. Collins, Jr., "Efficient Computation of the Solutions to Modified Lyapunov Equations," *SIAM J. Matrix Anal. Appl.*, Vol. 14, No. 2, pp. 420-431, April 1993.
60. E. G. Collins, Jr., J. A. King, D. J. Phillips, and D. C. Hyland, "High Performance Accelerometer-Based Control of the Mini-MAST Structure," *J. Guid. Contr. Dyn.*, Vol. 15, pp. 885-892, July 1992.
61. E. G. Collins, Jr., J. A. King, and D. S. Bernstein, "Application of Maximum Entropy/Optimal Projection Design Synthesis to a Benchmark Problem," *J. Guid. Contr. Dyn.*, Vol. 15, pp. 1094-1102, Sept. 1992.
62. D. Zigic, L. T. Watson, E. G. Collins, Jr., and D. S. Bernstein, "Homotopy Methods for Solving the Optimal Projection Equations for the H_2 Reduced Order Model Problem," *Int. J. Control*, Vol. 56, pp. 173-1991, 1992.
63. E. G. Collins, Jr., D. J. Phillips, and D. C. Hyland, "Robust Decentralized Control Laws for the ACES Structure," *Control Systems Magazine*, Vol. 11, pp. 62-70, 1991.
64. D. C. Hyland and E. G. Collins, Jr., "A Majorant Approach to Robust Stability and Time-Domain Performance for Discrete-Time Systems," *Automatica*, Vol. 27, pp. 167-172, 1991.
65. E. G. Collins, Jr. and D. C. Hyland, "Improved Robust Performance Bounds in Covariance Majorant Analysis," *Int. J. Contr.*, Vol. 50, pp. 495-509, 1989.
66. D. C. Hyland and E. G. Collins, Jr., "An M-Matrix and Majorant Approach to Robust Stability and Performance Analysis for Systems with Structured Uncertainty," *IEEE Trans. Autom. Contr.*, Vol. 34, pp. 691-710, 1989.
67. D. C. Hyland and E. G. Collins, Jr., "Block Kronecker Products and Block Norm Matrices in Large-Scale Systems Analysis," *SIAM J. Matrix Anal. Appl.*, Vol. 10, pp. 18-29, 1989; Erratum, Vol. 10, p. 593, 1989.

68. E. G. Collins, Jr. and R. E. Skelton, "A Theory of State Covariance Assignment for Discrete Systems," *IEEE Trans. Autom. Contr.*, Vol. AC-32, pp. 35-41, January 1987.
69. R. E. Skelton and E. G. Collins, Jr., "A Set of q-Markov Covers of Discrete Systems," *Int. J. Contr.*, Vol. 46, No. 1, pp. 1-12, July 1987.

Book Chapters

1. E. Dupont, E. G. Collins, Jr., E. Coyle and R. Roberts, "Terrain Classification Using Vibration Sensors: Theory and Methods," in *Mobile Robots: New Research*, Nova Science Publishers, Inc., 2010.
2. Y. Ge., L. T. Watson, D. S. Bernstein, and E. G. Collins, Jr., "Homotopy Algorithm for Riccati Equation Based H^2/H^∞ Controller Synthesis," *Encyclopedia of Electrical and Electronics Engineering*, Vol. 9, J. Webster (ed.), John Wiley & Sons, New York, N.Y., 1999, pp. 159--171.
3. E. G. Collins, Jr., D. J. Phillips, D. C. Hyland, and J. A. King, "Robust Control Experiments for Two Highly Elastic Space Structures," in *Control and Dynamic Systems--Multidisciplinary Engineering Systems: Design and Optimization Techniques and Their Application*, C. T. Leondes, Ed., Academic Press, pp. 233-280, 1992.
4. D. C. Hyland and E. G. Collins, Jr., "A Majorant Approach to Robust Stability and Time-Domain Performance for Discrete-Time Systems," in *Recent Advances in Robust Control*, P. Dorato and R. K. Yedavalli, Eds., IEEE Press, 1990.

Book Reviews

1. Emmanuel G. Collins, Book Review of **Fuzzy control systems design and analysis: a linear matrix inequality approach**, Kazuo Tanaka and Hua O. Wang; Copyright John Wiley & Sons, Inc., 2001, ISBN: 0-471-32324-1, *Automatica*, Vol. 39, pp. 2011-2013, 2003.

Conference Papers

1. D. Dunlap, C. Caldwell, E. G. Collins, Jr., "Nonlinear Model Predictive Control Using Sampling and Goal-Directed Optimization," *Proceedings of the Multi-Conference on Systems and Control*, Yokohama, Japan, September 8-9, 2010.
2. K. Zhang, E. G. Collins, Jr. and A. Barbu, "Centralized and Decentralized Task Allocation via A Novel Stochastic Clustering Auction," *2010 Florida Conference on Recent Advances in Robotics (FCRAR 2010)*, May 20 - 21, 2010, Jacksonville, Florida.
3. E. Coyle, E. G. Collins, Jr., "Updating Control Modes Based on Terrain Classification," *Proceedings of the IEEE Conference on Robotics and Automation*, Anchorage, Alaska, May 3-5, 2010, pp. 4417-4423.

4. C. Ordonez, O. Y. Chuy, Jr., E. G. Collins Jr., and X. Liu, "Rut Tracking and Steering Control for Autonomous Rut Following," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, San Antonio, TX, Oct. 11-14, 2009.
5. L. Lu, C. Ordonez, E. G. Collins, Jr., and E. M. Dupont, "Terrain Surface Classification for Autonomous Ground Vehicles Using a 2D Laser Stripe-Based Structured Light Sensor," *IEEE/RSJ International Conference on Intelligent Robots and Systems*, Oct. 11-15, 2009, pp. 2174-2181.
6. W. Yu, O. Chuy, Jr., E. G. Collins, Jr., and P. Hollis, "Dynamic Modeling of a Skid-Steered Wheeled Vehicle with Experimental Verification," *IEEE/RSJ International Conference on Intelligent Robots and Systems*, Oct. 11-15, 2009, pp. 4212-4219.
7. O. Chuy, Jr., V. Kumar, F. H. Holt III, E. G. Collins, Jr., and F. Alvi, "Microjet-based Separation Control Using a Virtual Sensor for Degree of Separation," *Florida Center for Advanced Aero-Propulsion (FCAAP) Annual Technical Symposium*, Orlando, FL, August 2009.
8. C. Ordonez, O. Y. Chuy, Jr., and E. G. Collins Jr., "Rut Detection and Following for Autonomous Ground Vehicles," *Proceedings of Robotics: Science and Systems*, Seattle, WA, June 2009.
9. O. Chuy, E. G. Collins, Jr., W. Yu, and C. Ordonez, "Power Modeling of a Skid Steered, Wheeled Robotic Ground Vehicle," *Proceedings of the IEEE Conference on Robotics and Automation*, May 12-17, 2009, Kobe, Japan, pp. 4118-4123.
10. E. Coyle and E. G. Collins, Jr., "A Comparison of Classifier Performance for Vibration-based Terrain Classification," *26th Army Science Conference*, Orlando, FL, Dec 1-4, 2008.
11. K. Zhang, E. G. Collins, Jr., D. Shi, X. Liu, and O. Chuy, Jr., "A Stochastic Clustering Auction (SCA) for Centralized and Distributed Task Allocation in Multi-Agent Teams," *Proceedings of Distributed Autonomous Robotic Systems 2008 (DARS2008)*, Tsukuba, Ibaraki, Japan, Nov. 17-19, 2008.
12. D. Shi, E. G. Collins Jr., A. Donate, X. Liu, B. Goldiez, D. Dunlap, "Human-Aware Robot Motion Planning with Velocity Constraints," *2008 International Symposium on Collaborative Technologies and Systems (CTS 2008)*, May 19-23, 2008, Irvine, CA, pp. 490-497.
13. D. Shi, E. G. Collins Jr., A. Donate, X. Liu, B. Goldiez, D. Dunlap, "Human-Friendly Motion Planning for a High-Speed Robot," *2008 Florida Conference on Recent Advances in Robotics (FCRAR 2008)*, Melbourne, Florida, May 8 - 9, 2008.
14. Donate, Y. Wang, X. Liu, and E. Collins, "Efficient and Accurate Subpixel Path Based Stereo Matching," *Proceedings of the International Conference on Pattern Recognition (ICPR 2008)*, Tampa, FL, Dec. 8-11, 2008.

15. D. D. Dunlap, E. G. Collins, Jr., and C. V. Caldwell, "Sampling Based Model Predictive Control with Application to Autonomous Vehicle Guidance," *2008 Florida Conference on Recent Advances in Robotics*, Melbourne, FL, May 8-9, 2008.
16. L. Lu, C. Ordonez, E. G. Collins, Jr., and E. M. DuPont, "Terrain Classification for Autonomous Ground Vehicles Using 2D Laser Stripe-Based Structured Light Sensor," *2008 Florida Conference on Recent Advances in Robotics*, Melbourne, FL, May 8-9, 2008.
17. E. G. Collins Jr. and E. Coyle, "Vibration-Based Terrain Classification Using Surface Profile Input Frequency Responses" *2008 IEEE International Conference on Robotics and Automation*, Pasadena, California, pp. 3276-3283, May 19-23, 2008.
18. E. Coyle, E. G. Collins Jr., E. M. DuPont, D. Dang, H. Wang, R. A. Cooper and G. Grindle, "Vibration-Based Terrain Classification for Electric Powered. Wheelchairs," *Proc. of the Fourth IASTED International Conference on Telehealth and Assistive Technologies (Telehealth/AT 2008)*, Baltimore, Maryland, pp. 139-144, April 16-18, 2008.
19. C. Ordonez, and E. G. Collins, Jr., "Rut Detection for Mobile Robots," *Proceedings of the IEEE 40th Southeastern Symposium on System Theory*, New Orleans, LA, pp. 334-337, March 16-18, 2008.
20. D. Shi, D. Dunlap, and E. G. Collins, Jr., "A Comparison Between a Fuzzy Behavioral Algorithm and a Vector Polar Histogram Algorithm for Mobile Robot Navigation," *Proceedings of the 2007 IEEE International Symposium on Computational Intelligence in Robotics and Automation*, Jacksonville, FL, pp. 260-265, June 2007.
21. E. M. DuPont, C. A. Moore, R. G. Roberts, and E. G. Collins, "Terrain Detection for Unmanned Ground Vehicles Using Hybrid Signal Classification Technique," *Proceedings of the 25th Army Science Conference*, November 2006.
22. C. Ordonez, E. G. Collins, Jr., M. Selekwa, and D. Dunlap, "Limit Cycle Negotiation for Behavior Based Systems," *Proceedings of the 25th Army Science Conference*, November 2006.
23. C. V. Caldwell, E. G. Collins, Jr., and S. Palanki, "Integrated Guidance and Control of AUVs Using Shrinking Horizon Model Predictive Control," *Proceedings of Oceans 2006*, Boston, MA, September 2006.
24. D. Dores, M. Santos Madruga, A. Krothapalli, L. Lourenco, E. Collins, Jr., F. Alvi, P. Strykowski, "Characterization of a Counterflow Thrust Vectoring Scheme on a Gas Turbine Engine Exhaust Jet," *Proceedings of the AIAA 3rd Flow Control Conference*, San Francisco, June 2006.
25. D. Shi, M. F. Selekwa, E. G. Collins, Jr., and D. D. Dunlap, "Robot Navigation in Cluttered 3-D Environments Using Preference-based Fuzzy Behaviors," *Proceedings of the 2006 Florida Conference on Recent Advances in Robotics*, Miami, FL, May 2006.
26. C. Ordonez, E. G. Collins, Jr., M. Selekwa, and D. Dunlap, "A Simple Limit Cycle Negotiation Strategy for Robot Navigation" *Proceedings of the 2006 Florida Conference on Recent Advances in Robotics*, Miami, FL, May 2006.
27. E. M. DuPont, C.A. Moore, M. Selekwa, E. Collins, and R. Roberts, "Online Terrain Classification for Mobile Robots," *Proceedings of the ASME International Mechanical Engineering Conference & Exposition*, Orlando, Florida, Paper IMECE2005-81659, November 2005.

28. D. Shi, M. F. Selekwa, E. G. Collins, Jr., and C. A. Moore, "Fuzzy Behavior Navigation for an Unmanned Helicopter in Unknown Environments," *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics*, Waikoloa, Hawaii, pp. 3897-3902, October 2005.
29. D. Shi, M. F. Selekwa, E. G. Collins, Jr., and C. A. Moore, "A Novel Navigation Algorithm for an Unmanned Helicopter Flying in an Indoor Environment," *Florida Conference on Recent Advances in Robotics*, May 2005.
30. C. Ordonez, M. Selekwa, E. Collins, and D. Dunlap, "Detection and Retraction from Limit Cycles for Navigation of Robotic Vehicles in Cluttered Environments," *Florida Conference on Recent Advances in Robotics*, May 2005.
31. E. M. DuPont, C. Moore, R. G. Roberts, and E. G. Collins, Jr., "Terrain Classification Using Probabilistic Neural Networks," *Florida Conference on Recent Advances in Robotics*, May 2005.
32. M. F. Selekwa, D. D. Dunlap, and E. G. Collins, Jr., "Implementation of Multi-valued Fuzzy Behavior Control for Robot Navigation in Cluttered Environments," *Proceedings of the 2005 IEEE International Conference on Robotics and Automation*, Barcelona, Spain, pp. 3699-3706, April 2005.
33. Y. Lu, E. G. Collins, Jr., and M. F. Selekwa, "Parity Relation Based Fault Detection, Isolation and Reconfiguration for Autonomous Ground Vehicle Localization Sensors," *Proceedings of the 24th Army Science Conference*, Orlando, FL, November 2004.
34. D. Sadhukhan, C. Moore, and E. Collins, "Terrain Estimation Using Internal Sensors," *Proceedings of the 10th IASTED International Conference on Robotics and Applications*, Honolulu, Hawaii, paper 447-800, August 2004.
35. E. G. Collins, Jr., Y. Zhao, F. Alvi, M. Alidu, and P. J. Strykowski, "Feedback Control for Counterflow Thrust Vectoring," *Proceedings of the American Control Conference*, Boston, MA, pp. 3654-3659, June 2004.
36. T. Curry and E. G. Collins, Jr., "Robust Fault Detection and Isolation Using Robust l_1 Estimation," *Proceedings of the American Control Conference*, Boston, MA, pp. 2451-2456, June 2004.
37. M. F. Selekwa, E. G. Collins, Jr., and J. Q. Combey, Jr., "Multivalued Versus Univalued Reactive Fuzzy Behavior Systems for Navigation Control of Autonomous Ground Vehicles," *Annual Florida Conference on the Recent Advances in Robotics*, Orlando, FL, May 2004.
38. Y. Zhao, M. F. Selekwa, and E. G. Collins, Jr., "Computational Improvements in the Multivalued Fuzzy Behavior Control System for Robot Navigation," *Annual Florida Conference on the Recent Advances in Robotics*, Orlando, FL, May 2004.
39. M. F. Selekwa, P. J. Hollis, S. Palanki, and E. G. Collins, Jr., "Torque Control of a Robotic Vehicle Based on the Predicted Road Profile," *Annual Florida Conference on the Recent Advances in Robotics*, Orlando, FL, May 2004.
40. M. F. Selekwa, E. G. Collins, Jr., and J. Q. Combey, Jr., "On Reactive Fuzzy Behavior Systems for Navigation Control of Mobile Robots," *Proceedings of the 10th International Conference on*

Robotics and Remote Systems for Hazardous Environments, Gainseville, FL, pp. 419-426, March 2004.

41. Y. Zhao, M. F. Selekwa, and E. G. Collins, Jr., "Multivalued Fuzzy Behavior Control System for Robot Navigation: Computational and Performance Improvement," *Proceedings of the 10th International Conference on Robotics and Remote Systems for Hazardous Environments*, pp. 240-247, March 2004.
42. M. F. Selekwa and E. G. Collins, Jr., "Centralized Fuzzy Behavior Control for Robot Navigation," *Proceedings of the 2003 IEEE International Symposium on Intelligent Control*, Houston, Texas, pp. 602-607, October 2003.
43. T. D. Curry and E. G. Collins, Jr., "Robust Fault Detection for a Jet Engine Using Robust l_1 Estimation," *Proceedings of SAFEPROCESS 2003*, Washington, DC, June 2003.
44. Y. Zhao, E. G. Collins, Jr., and D. Dunlap, "Design of Genetic Fuzzy Parallel Parking Control Systems," *Proceedings of the 2003 American Control Conference*, Denver, Colorado, pp. 4107-4112, June 2003.
45. Y. Zhao and E. G. Collins, Jr., "Non-model-based Control for an Industrial Weigh Belt Feeder," *Proceedings of the 2003 American Control Conference*, Denver, Colorado, pp. 3667-3672, June 2003.
46. E. G. Collins, Jr., A. Sivaprasad and M. Selekwa, "Insights on Reduced Order, H_2 Optimal Controller Design Methods," *Proceedings of the 2003 American Control Conference*, Denver, Colorado, pp. 5357-5362, June 2003.
47. Y. Zhao and E. G. Collins, Jr., "Control of AGVs in Tight Spaces via Fuzzy Logic," *Collaborative Technology Alliances Conference*, College Park, MD, pp. 123-128, April 2003.
48. M. F. Selekwa and E. G. Collins, Jr., "Robust Fusion of Robotic Fuzzy Behaviors," *Collaborative Technology Alliances Conference*, College Park, MD, pp. 59-64, April 2003.
49. M. F. Selekwa and E. G. Collins, Jr., "Behavior Design for Robust Fusion in Robotic Fuzzy Control," *Proceedings of the International Conference on Computer Communications and Control Technologies: CCCT 03*, Orlando, Florida, USA, July 31, 2003.
50. Y. Zhao, E. G. Collins, Jr., and D. Dunlap, "Genetic Fuzzy Parallel Parking for Autonomous Ground Vehicles", *Proceedings of the 23rd Army Science Conference*, Orlando, FL, December 2002.
51. M. F. Selekwa and E. G. Collins, Jr., "Solving Inexplicit and Undetermined Nonlinear Systems of Equations Using Fuzzy Logic," *Proceedings of the American Control Conference*, Anchorage, Alaska, pp. 3258-3263, May 2002.
52. Y. Zhao, E. G. Collins, Jr., and D. Cartes, "Indirect Self-tuning Regulator Design for an Industrial Weigh Belt Feeder," *Proceedings of the American Control Conference*, Anchorage, Alaska, pp. 2058-2063, May 2002.

53. Y. Zhao and E. G. Collins, Jr., "Fuzzy PI Control of an Industrial Weigh Belt Feeder," *Proceedings of the American Control Conference*, Anchorage, Alaska, pp. 3534-3539, May 2002.
54. M. F. Selekwa and E. G. Collins, Jr., " H_∞ Loop Shaping Design with Time Domain Constraints: Application of Fuzzy Logic," *Proceedings of the IEEE Conference on Decision and Control*, Orlando, FL, pp. 4358-4363, December 2001.
55. C. Fan, E. G. Collins, Jr., C. Liu, and B. Wang, "Control Design and Experimental Results of Sensor Based Direct Process Control for Bar Turning," *Proceedings of the IEEE Conference on Decision and Control*, Orlando, FL, pp. 4075-4080, December 2001.
56. M. F. Selekwa and E. G. Collins, Jr., "A Fuzzy Approach to Reduced Order Variance Constrained Control Design," *Proceedings of the American Control Conference*, Arlington, VA, pp. 2370-2735, June 2001.
57. M. F. Selekwa and E. G. Collins, Jr., "Parameter and State Variation Estimation for Multi-Equilibria Nonlinear Systems Using a 'Stacked' Model Structure," *Proceedings of the American Control Conference*, Arlington, VA, pp. 2530-2535, June 2001.
58. E. G. Collins, Jr. and Y. Zhao, "Optimal PID Controller with Finite Word Length Implementation," *Proceedings of the American Control Conference*, Arlington, VA, pp. 2173-2178, June 2001.
59. E. G. Collins, Jr. and Y. Zhao, "Unfalsified PI Control Design for a Weigh Belt Feeder Using Genetic Search," *Proceedings of the American Control Conference*, Arlington, VA, pp. 4116-4121, June 2001.
60. T. D. Curry and E. G. Collins, Jr., "Robust Fault Detection Using Robust l_1 Estimation and Fuzzy Logic," *Proceedings of the American Control Conference*, Arlington, VA, pp. 1753-1758, June 2001.
61. E. G. Collins, Jr. and Y. Zhao, "Design of H_2 Optimal, Finite Word Length, PID Controllers," *Proceedings of the American Control Conference*, Chicago, Illinois, pp. 902-903, June 2000.
62. T. Song and E. G. Collins, Jr., "Robust H_2 Estimation with Application to Robust Fault Detection," *Proceedings of the American Control Conference*, Chicago, Illinois, pp. 1200-1204, June 2000.
63. E. G. Collins, Jr. and T. Song, "An Upper Bound for Finite-Horizon H_2 Performance of Uncertain Systems," *Proceedings of the American Control Conference*, Chicago, Illinois, pp. 4383-4387, June 2000.
64. C. Fan and E. G. Collins, Jr., "Control Design for a Bar Turning Process Using Laser-Based Measurements," *Proceedings of the American Control Conference*, Chicago, Illinois, pp. 1530-1534, June 2000.
65. M. Selekwa and E. G. Collins, Jr., "Variance Constrained LQG Design Using Fuzzy Logic," *Proceedings of the 2000 Southeastern Symposium on System Theory*, Tallahassee, FL, March 2000, pp. 223-227, March 2000.

66. E. G. Collins, Jr. and M. F. Selekwa, "Fuzzy Quadratic Weights for Variance Constrained LQG Design," *Proceedings of the IEEE Conference on Decision and Control*, Phoenix, AZ, pp. 4044-4049, December 1999.
67. E. G. Collins, Jr., R. Walker, and S. Palanki, "Parameter Variation Estimation for Nonlinear Systems Using a 'Stacked' Linear Model Structure," *Proceedings of the IEEE Conference on Decision and Control*, Phoenix, AZ, pp. 3265-3270, December 1999.
68. E. G. Collins, Jr., C. Fan, and R. Millett, "Automated PI Tuning for a Weigh Belt Feeder via Unfalsified Control," *Proceedings of the IEEE Conference on Decision and Control*, Phoenix, AZ, pp. 785-790, December 1999.
69. T. Song, E. G. Collins, Jr., and R. Istepanian, "Improved Closed-Loop Stability for Fixed-Point Controller Implementation Using the Delta Operator," *Proceedings of the 1999 American Control Conference*, San Diego, CA, pp. 4328-4332, June 1999.
70. E. G. Collins, Jr. and T. Song, "Robust l_1 Estimation Using the Popov-Tsytkin Multiplier with Application to Robust Fault Detection," *Proceedings of the 1999 American Control Conference*, San Diego, CA, pp. 3923-3927, June 1999.
71. E. G. Collins, Jr., and T. Song, "Multiplier-Based Robust H_∞ Estimation with Application to Robust Fault Detection," *Proceedings of the American Control Conference*, San Diego, CA, pp. 4408-4412, June 1999.
72. E. G. Collins, Jr., D. Sadhukhan, and W. M. Haddad, "Towards Optimization-Based Nonlinear Output Feedback Control Design," *Proceedings of the 1999 American Control Conference*, San Diego, CA, pp. 3312-3316, June 1999.
73. E. G. Collins, Jr., and T. Song, "Robust H_2 Estimation Using the Popov-Tsytkin Multiplier," *Proceedings of the IEEE Conference on Decision and Control*, Tampa, FL, pp. 1189-1194, Dec. 1998.
74. E. G. Collins, Jr., D. Sadhukhan, and L. T. Watson, "Robust Control for a Benchmark Problem via Nonlinear Matrix Inequalities," *Proceedings of the 1998 American Control Conference*, Philadelphia, PA, pp. 555-557, June 1998.
75. E. G. Collins, Jr. and T. Song, "A Delta-Domain Approach to Discrete-Time H_∞ Control," *Proceedings of the 1998 American Control Conference*, Philadelphia, PA, pp. 1980-1984, June 1998.
76. Y. Ge, L. T. Watson, and E. G. Collins, Jr., "Exploiting Structure in a Projective Algorithm for Solving Strict Linear Matrix Inequalities," *Proceedings of the 1998 American Control Conference*, Philadelphia, PA, pp. 3089-3090, June 1998.
77. Y. Ge, L. T. Watson, and E. G. Collins, Jr., "Genetic Algorithms for Optimization on a Quantum Computer," *Proceedings of the First International Conference on Unconventional Models of Computation*, Auckland, New Zealand, January 5, 1998.

78. E. G. Collins, Jr., W. M. Haddad, and V. Chellaboina, "Robustness Analysis in the Delta-Domain Using Fixed-Structure Multipliers," *Proceedings of the IEEE Conference on Decision and Control*, San Diego, CA, pp. 3286-3291, Dec. 1997.
79. E. G. Collins, Jr., and D. Sadhukhan, "A Comparison of Descent and Continuation Algorithms for H_2 Optimal Reduced-Order Control Design," *Proceedings of the American Control Conference*, Albuquerque, New Mexico, pp. 3447-3448, June 1997.
80. E. G. Collins, Jr., and D. Sadhukhan, "Synthesis of Fixed-Architecture, Robust H_2 and H_∞ Controllers," *Proceedings of the American Control Conference*, Albuquerque, New Mexico, pp. 3510-3514, June 1997.
81. E. G. Collins, Jr., D. Sadhukhan, and L. T. Watson, "Robust Controller Synthesis via Nonlinear Matrix Inequalities," *Proceedings of the American Control Conference*, Albuquerque, New Mexico, pp. 67-71, June 1997.
82. Y. Ge, L. T. Watson, and E. G. Collins, Jr., "A Distributed Algorithm for H^2/H^∞ Controller Synthesis," *Proceedings of the IEEE Conference on Decision and Control*, Kobe, Japan, pp. 1317-1318, December 1996.
83. F. M. Ham and E. G. Collins, Jr., "A Neurocomputing Approach for Solving the Algebraic Matrix Riccati Equation," *Proceedings of the IEEE International Conference on Neural Networks*, Washington, D.C., Vol. 1, pp. 617-622, 1996.
84. F. M. Ham and E. G. Collins, Jr., "A Neural Network Architecture for Solving the Algebraic Matrix Riccati Equation," *Proceedings of SPIE 1996 International Conference on Aerospace/ Defense Sensing and Control (Applications and Science of Artificial Neural Networks)*, Orlando, FL, SPIE Vol. 2760, pp. 294-301, 1996.
85. E. G. Collins, Jr., W. M. Haddad, and L. T. Watson, "Fixed-Architecture, Robust Control Design Using Fixed-Structure Multipliers," *Proceedings of the International Federation of Automatic Control*, Vol. C, San Francisco, CA, pp. 73-78, June 1996.
86. D. C. Hyland, E. G. Collins, Jr., W. M. Haddad, and D. L. Hunter, "Neural Network System Identification for Improved Noise Rejection," *Proc. 1995 Amer. Contr. Conf.*, Seattle, WA., pp. 345-349.
87. E. G. Collins, Jr., W. M. Haddad, and S. S. Ying, "Reduced-Order Dynamic Compensation Using the Hyland and Bernstein Optimal Projection Equations," *Proc. 1995 Amer. Contr. Conf.*, Seattle, WA., pp. 539-543.
88. Y. Ge., L. T. Watson, and E. G. Collins, Jr., "Distributed Homotopy Algorithms for H_2/H_∞ Controller Synthesis," in *Parallel Processing for Scientific Computing*, P. E. Bjorstand, J. R. Gilbert, M. V. Mascagni, R. S. Schreiber, H. D. Simon, V. J. Torczor, and L. T. Watson, eds., SIAM, Philadelphia, PA, pp. 84-89, 1995.
89. E. G. Collins, Jr., S. S. Ying, and W. M. Haddad, "An Efficient, Numerically Robust Homotopy Algorithm for H_2 Model Reduction Using the Optimal Projection Equations," *Proc. 1994 IEEE Conf. Dec. Contr.*, Lake Buena Vista, FL, pp. 1899-1904, Dec. 1994.

90. Y. Ge, E. G. Collins, Jr., and L. T. Watson, "Probability One Homotopy Algorithms for Full and Reduced Order H_2/H_∞ Controller Synthesis," *Proc. 1994 IEEE Conf. Dec. Contr.*, Lake Buena Vista, FL, pp. 2672-2677, Dec. 1994.
91. W. M. Haddad, E. G. Collins, Jr., R. Moser, "Computation of the Complex Structured Singular Value using Fixed Structure Dynamic D-Scales," *Proc. 1994 IEEE Conf. Dec. Contr.*, Lake Buena Vista, FL, pp. 3003-3008, Dec. 1994.
92. W. M. Haddad, E. G. Collins, Jr., D. C. Hyland, and V. S. Chellaboina, "New Frequency Domain Performance Bounds for Uncertain Structural Systems with Actuator and Sensor Dynamics," *Proc. 1994 IEEE Conf. Dec. Contr.*, Lake Buena Vista, FL, pp. 3009-3014, Dec. 1994.
93. D. C. Hyland, E. G. Collins, Jr., W. M. Haddad, and V. S. Chellaboina, "Frequency Domain Performance Bounds for Uncertain Positive Real Plants Controlled by Strictly Positive Real Compensators," *Proc. Amer. Contr. Conf.*, Baltimore, MD, pp. 2328-2332, June 1994.
94. E. G. Collins, Jr., W. M. Haddad, and S. S. Ying, "Generalized Fixed-Structure Optimality Conditions for H_2 Optimal Control," *Proc. Amer. Contr. Conf.*, San Francisco, CA, pp. 2439-2443, June 1993.
95. J. How, E. G. Collins, Jr., and W. M. Haddad, "Optimal Popov Controller Analysis and Synthesis for Systems with Real Parameter Uncertainty," *Proceedings of the AIAA Guidance, Navigation, and Control Conference*, Aug. 1995, pp. 141-150.
96. W. M. Haddad, E. G. Collins, Jr., and R. Moser, "Structured Singular Value Controller Synthesis Using Constant D-Scales without D-K Iteration," *Proc. Amer. Contr. Conf.*, Baltimore, MD, pp. 2798-2802, June 1994.
97. E. G. Collins, Jr. and A. S. Hodel, "Efficient Solution of Linearly Coupled Lyapunov Equations," *Proc. Amer. Contr. Conf.*, Baltimore, MD, pp. 2819-2823, June 1994.
98. E. G. Collins, Jr., W. M. Haddad, and S. Ying, "Construction of Low Authority, Nearly Non-Minimal LQG Compensators for Initializing Optimal Reduced-Order Control Design Algorithms," *Proc. Amer. Contr. Conf.*, Baltimore, MD, pp. 3411-3415.
99. Y. Ge., E. G. Collins, Jr., L. T. Watson, and D. S. Bernstein, "A Homotopy Algorithm for the Combined H^2/H^∞ Model Reduction Problem," *Proc. IEEE Southeastcon '93*, IEEE, Piscataway, NJ, 1993.
100. L. D. Davis, E. G. Collins, Jr., and W. M. Haddad, "Discrete-Time, Mixed-Norm H_2/H_∞ Controller Synthesis," *Proc. Amer. Contr. Conf.*, Baltimore, MD, pp. 1148-1152, June 1994.
101. E. G. Collins, Jr., L. D. Davis, and S. Richter, "Design of Reduced-Order, H_2 Optimal Controllers Using a Homotopy Algorithm," *Proc. Amer. Contr. Conf.*, San Francisco, CA, pp. 2658-2662, June 1993.
102. E. G. Collins, Jr., L. D. Davis, and S. Richter, "A Homotopy Algorithm for Maximum Entropy Design," *Proc. Amer. Contr. Conf.*, San Francisco, CA, June 1993, pp. 1010-1014, June 1993.

103. W. M. Haddad, E. G. Collins, Jr., and R. Moser, "Fixed Structure Computation of the Structured Singular Value," *Proc. Amer. Contr. Conf.*, San Francisco, CA, pp. 1673-1674, June 1993.
104. W. M. Haddad, V. Kapila, and E. G. Collins, Jr., "Optimality Conditions for Reduced-Order Modeling, Estimation and Control for Discrete-Time Linear Periodic Plants," *Proc. Amer. Contr. Conf.*, San Francisco, CA, pp. 2111-2115, June 1993.
105. D. Zigic, L. T. Watson, E. G. Collins, Jr., and L. D. Davis, "A Homotopy Method for Solving Riccati Equations on a Shared Memory Parallel Computer," *Sixth SIAM Conference on Parallel Processing for Scientific Computing*, March 1993, pp. 614-617.
106. Y. Ge., E. G. Collins, Jr., L. T. Watson, and D. S. Bernstein, "Homotopies for the Combined H^2/H^∞ Model Reduction Problem," *1993 IEEE Southeastern Conference*, submitted.
107. D. Zigic, L. Watson, E. G. Collins, Jr., and D. S. Bernstein, "Effect of Initial System on Homotopy Methods for the H_2 Reduced Order Model Problem," *Proc. First IEEE Conference on Control Applications*, IEEE, New York, Sept. 1992, pp. 252-257.
108. E. G. Collins, Jr., W. M. Haddad, and S. Ying, "Generalized Fixed-Structure Optimality Conditions for H_2 Optimal Control," *Proc. IEEE Conf. Dec. Contr.*, Tuscon, AZ, Dec. 1992.
109. L. Davis, E. G. Collins, Jr., and A. S. Hodel, "A Parameterization of Minimal Plants," *Proc. Amer. Contr. Conf.*, Chicago, IL, June 1992, pp. 355-356.
110. E. G. Collins, Jr., W. M. Haddad, and D. S. Bernstein, "Small Gain, Circle, Positivity, and Popov Analysis of a Maximum Entropy Controller for a Benchmark Problem," *Proc. Amer. Contr. Conf.*, Chicago, IL, June 1992, pp. 2425-2426.
111. Y. Ge, L. T. Watson, and E. G. Collins, Jr., "A New Homotopy Method for Solving the H^2 Optimal Model Reduction Problem," *Fourth SIAM Conference on Optimization*, Chicago, IL, May 1992.
112. E. G. Collins, Jr., S. Richter, and L. D. Davis, "Reliable Design of H_2 Optimal Reduced-Order Controllers Via a Homotopy Algorithm," *Controls for Optical Systems*, John Breakwell, Ed., SPIE Proc. Vol. 1696, Orlando, FL, April 1992.
113. D. J. Phillips, D.C. Hyland, E.G. Collins, Jr., and J.A. King, "The Multi-Hex Prototype Experiment," *Proc. IEEE Conf. Dec. Contr.*, Brighton, U.K., December 1991, pp. 2024-2029.
114. E. G. Collins, Jr., D. J. Phillips, J. A. King, and D. C. Hyland, "Experimental Results in Active Control of The Mini-MAST and ACES Structures," *Controls for Aerospace Systems*, DSC-Vol. 35, presented at the December 1991 Winter Annual Meeting of the ASME, The American Society of Mechanical Engineers, 1991, pp. 27-34.
115. E. G. Collins, Jr., J. A. King, and D. S. Bernstein, "Robust Control Design for the Benchmark Problem Using the Maximum Entropy Approach," *Proc. Amer. Contr. Conf.*, pp. 1935-1936, Boston, MA, June 1991.
116. S. Richter, L. D. Davis and E. G. Collins, Jr., "A Solution Methodology for Modified Lyapunov Equations," *Proc. Amer. Contr. Conf.*, pp. 2439-2440, Boston, MA, June 1991.

117. E. G. Collins, Jr. and S. Richter, "Active Structural Control for the Mini-MAST and ACES Structures," *Proc. Eighth VPI&SU Symposium on Dynamics and Control of Large Structures*, Blacksburg, VA, May 1991.
118. D. Zigic, Emmanuel G. Collins, Jr., S. Richter and L. T. Watson, "A Homotopy Method for Solving Optimal Projection Equations for the Reduced Order Model Problem," *Proc. IEEE Southeastcon*, Williamsburg, VA, April 1991.
119. D. J. Phillips, E. G. Collins, Jr. and D. C. Hyland, "Experimental Demonstrations of Active Vibration Control of Flexible Structures," *Proc. IEEE Conf. Dec. Contr.*, pp. 2024-2029, Honolulu, HI, December, 1990.
120. D. S. Bernstein, E. G. Collins, Jr. and D. C. Hyland, "Real Parameter Uncertainty and Phase Information in the Robust Control of Flexible Structures," *Proc. IEEE Conf. Dec. Contr.*, pp. 379-380, Honolulu, HI, December 1990.
121. E. G. Collins, Jr. and S. Richter, "A Homotopy Algorithm for Synthesizing Robust Controllers for Flexible Structures Via the Maximum Entropy Design Equations," *Third Air Force/NASA Symposium on Recent Advances in Multidisciplinary Analysis and Optimization*, pp. 324-333, San Francisco, CA, September 1990.
122. D. J. Phillips and E. G. Collins, Jr., "Four Experimental Demonstrations of Active Vibration Control for Flexible Structure," *Proc. AIAA Guid. Nav. Contr. Conf.*, pp. 1625-1633, Portland, OR, August 1990.
123. S. Richter and E. G. Collins, Jr., "A Homotopy Algorithm for Solving Algebraic Riccati Equations," *Proc. Amer. Contr. Conf.*, pp. 2938-2939, San Diego, CA, May 1990.
124. E. G. Collins, Jr., D. J. Phillips and D. C. Hyland, "Design and Implementation of Robust Decentralized Control Laws for the ACES Structure at Marshall Space Flight Center," *Proc. Amer. Contr. Conf.* pp. 1449-1454, San Diego, CA, May 1990.
125. E. G. Collins, Jr. and D. S. Bernstein, "Robust Control Design for a Benchmark Problem Using a Structured Covariance Approach," *Proc. Amer. Contr. Conf.*, pp. 970-971, San Diego, CA, May 1990.
126. D. C. Hyland, D. J. Phillips and E. G. Collins, Jr., "Active Control Experiments for Large Optics Vibration Alleviation," *SPIE Optoelectronics Conf.*, Orlando, FL, April 1990.
127. S. Richter and E. G. Collins, Jr., "A Homotopy Algorithm for Reduced-Order Controller Design Using the Optimal Projection Equations," *Proc. IEEE Conf. Dec. Contr.*, pp. 506-511, Tampa, FL, December 1989.
128. D. C. Hyland and E. G. Collins, Jr., "A Majorant Approach to Robust Stability and Time-Domain Performance for Discrete-Time Systems," *Proc. Amer. Contr. Conf.*, pp. 1604-1609, Pittsburg, PA, June 1989.
129. E. G. Collins, Jr. and D. C. Hyland, "Improved Robust Performance Bounds in Covariance Majorant Analysis," *Proc. IEEE Conf. Dec. Contr.*, pp. 2176-2181, Austin, TX, December 1988.

130. D. C. Hyland and E. G. Collins, Jr., "An M-Matrix and Majorant Approach to Robust Stability and Performance Analysis for Systems with Structured Uncertainty," *Proc. IEEE Conf. Dec. Contr.*, pp. 2176-2181, Austin, TX, December 1988.
131. D. C. Hyland and E. G. Collins, Jr., "A Robust Control Experiment Using an Optical Structure Prototype," *Proc. Amer. Contr. Conf.*, pp. 2046-2049, Atlanta, GA, June 1988.
132. E. G. Collins, Jr. and R. E. Skelton, "Constrained Variance Design Using State Covariance Assignment," *Proc. 1986 Amer. Contr. Conf.*, Seattle, WA, June 1986.
133. E. G. Collins, Jr. and R. E. Skelton, "Covariance Control of Discrete Systems," *Proc. IEEE Conf. Dec. Contr.*, pp. 542-547, Fort Lauderdale, FL, Dec. 1985.
134. E. G. Collins, Jr., R. E. Skelton and T. L. Morin, "Efficiency and Optimality in Constrained Variance Control," *Proc. IEEE Conf. Dec. Contr.*, pp. 792-793, Los Angeles, CA, December 1987.

Reports

1. D. McElroy, R. McLaughlin, and E. G. Collins, "Generation of Pareto Optimal, Performance vs. Cost Curves for Control System Design in Aircraft Engines," Pratt & Whitney, August 1999.
2. J. Rhodes, E. G. Collins, Jr., and R. McLaughlin, "Acceleration Feedback for the Boeing JSF Nozzle," Pratt & Whitney, August 1999.
3. J. E. Cole III, J. M. Garrelick, and E. G. Collins, Jr., "Control Design for Structural-Acoustic Applications," Final Report No. U-2331-395, prepared for Carderock Division/Naval Surface Warfare Center, Bethesda, Md, July 1994.
4. J. M. Garrelick, J. E. Cole III, and E. G. Collins, Jr., "Review of State of the Art in Structural Acoustic Modelling and Robust Feedback Controller Design," Interim Report No. U-2210-395, prepared for Carderock Division/Naval Surface Warfare Center, Bethesda, MD, March 1994
5. E. G. Collins, Jr., J. A. King, D. J. Phillips, and D. C. Hyland, "High Performance, Accelerometer-Based Control of the Mini-MAST Structure at Langley Research Center," NASA Contractor Report 4377, May 1991.
6. E. G. Collins, Jr., S. Richter and L. D. Davis, "A Homotopy Algorithm for Robust Reduced Order Compensator Design Via the Maximum Entropy-Optimal Projection Equations," report prepared for Sandia National Laboratories, November 1990.
7. E. G. Collins, Jr., D. J. Phillips and D. C. Hyland, "Design and Implementation of Robust Decentralized Control Laws for the ACES Structure at Marshall Space Flight Center," NASA Contractor Report 4310, Langley Research Center, July 1990.
8. F. Hotz, E. Collins and R. E. Skelton, "Linearized Dynamical Model of the NASA/IEEE SCOLE Configuration," NASA Contractor Report 172394, Langley Research Center, Hampton, VA, Sept. 1984.

9. E. G. Collins, "Heat Transfer Analysis of KS14603 Resistors and an IERC Heat Sink Attached to a KS21322 Voltage Regulator," Bell Laboratories, Case 38723-20, Holmdel, NJ, Nov. 21, 1980.

Invited Presentations

1. "Issues and Progress in the Development of Smart, All Terrain Autonomous Ground Vehicles," Army Soldier Equipment Expo, Fayetteville, NC, Nov. 18, 2009.
2. "Motion Planning Using Dynamic Models," *CMU Robotics Institute*, Carnegie Mellon University, Pittsburgh, PA, Oct. 30, 2009.
3. "Dynamic Modeling of Skid-Steered Vehicles," *Spring Grasp Seminar Series*, University of Pennsylvania, Philadelphia, PA, Jan. 23, 2009.
4. "Vibration-Based Terrain Classification: Giving Wheeled Mobile Robots a Sense of Feel," *Department of Mechanical Engineering Seminar*, Virginia Tech, April 30, 2008.
5. "Soldier-Robot Collaboration and Coordination Using Dynamic Models," *American Institute of Engineers Robotics and Unmanned Ground & Sea Systems Conference*, Crystal City, VA, May 16-18, 2007.
6. "Sampling Based Model Predictive Control with Application to Motion Planning in Extreme Environments," *ARO-MIT Workshop on Mobility and Control in Challenging Environments*, Olin College, Needham, MA, Oct. 5-6, 2006.
7. "Robotics & Automation Technology," *Florida Georgia Technology Conference 2006*, Leon County Civic Center, Tallahassee, FL, Sept. 12, 2006.
8. "Applications of Modern Control and Filtering Concepts to Real World Problems," *The Department of Rehabilitation Science and Technology (RST) Lecture*, School of Health and Rehabilitation Sciences, University of Pittsburgh, March 31, 2006.
9. "Mobile Robotics Research at the Center for Intelligent Systems, Control & Robotics (CISCOR)," *AUVSI (Association for Unmanned Vehicles International) Florida Peninsula Chapter Meeting*, Feb. 2, 2006.
10. "Design of Finite Word Length Delta Controllers," *10th Annual UTC Engineering Conference & Technology Expo*, Cromwell, CT, April 21, 1999.
11. "Robust Fault Detection and Isolation Using Analytical Redundancy," *10th Annual UTC Engineering Conference & Technology Expo*, Cromwell, CT, April 21, 1999.
12. "Fuzzy Quadratic Weight Selection for Variance Constrained LQG Design," *Symposium in Honor of Robert E. Skelton's 60th Birthday*, University of California, San Diego, Dec. 14, 1998.
13. "Mathematical Issues Arising in Robust Control and Analysis," *J. James Woods Lecture Series*, Mathematics and Computer Science Department, Butler University, Indianapolis, IN, September 28, 1995.