

CURRICULUM VITAE

Jose Alexis De Abreu-García, Ph.D.
Professor and Chair

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EDUCATION Queen's University, Kingston, ONT, Canada B.S.E.E. Electrical Engineering 1982
Queen's University, Kingston, ONT, Canada Ph.D. Electrical Engineering (Controls) 1986

WORK EXPERIENCE

Research Associate, EE Dept., Imperial College of Science and Technology, London, England 9/85-5/86
Research and Teaching Assistant, EE Dept., Queen's University, Kingston, ONT, Canada 5/82-9/85
Postdoctoral Fellow, EE Dept., Queen's University, Kingston, ONT, Canada 11/86-2/87
Assistant Professor, EE Dept., University of Akron, Akron, OH, USA 8/87 – 7/91
Associate Professor, EE Dept., University of Akron, Akron, OH, USA 8/91 – 7/00
Professor and Interim Chair, ECE Dept., University of Akron, Akron, OH, USA 8/00 – 8/03
Professor and Chair, ECE Dept., University of Akron, Akron, OH, USA 8/03 – present
Controls Specialist, Computer, Control and Electronic Technology Department 6/95-8/96
The Goodyear Tire & Rubber Company, Goodyear Technical Center, Akron, OH, USA

RESEARCH, TRAINING AND TEACHING EXPERIENCE

Dr. De Abreu-García has authored/co-authored over 80 publications in control system analysis, design, and algorithms; order reduction of multidimensional large-scale linear, nonlinear, descriptor, and distributed parameter systems; classical and modern robust control techniques; system simulation; real-time control applications and fuzzy/neuro-fuzzy logic control system design. He has also worked on heart pump modeling and control and is currently working on control applications using smart materials.

Dr. De Abreu-García has consulted for NASA and several Fortune 500 companies. He has developed and taught on-site training workshops for industrial engineers at The Goodyear Tire & Rubber Company, The Eveready Battery Company, and Morse Controls (IMO Industries, inc.). He is currently setting up a SERCOS Competency Center at the University of Akron.

ACHIEVEMENTS, AWARDS, AND SCHOLARSHIPS

Promoted to Professor	Fall 2000
Students Siemens Award – Best EE Teacher	Spring 1999
Students Siemens Award – Best EE Teacher	Spring 1993
Awarded Indefinite Tenure	Fall 1992
Promoted to Associate Professor	Fall 1991
Raymond C. Firestone Research Initiative Fellowship	1987–1988
Queen's Graduate Fellowship	1985–1986
Queen's Graduate Tuition Bursary	1985–1986
Queen's Graduate Award	1984–1985
Promoted to Ph.D. Program without completion of M.Sc.	Fall 1983
W.W. King Fellowship	1982–1983
Fundación Gran Mariscal de Ayacucho Scholarship	1976–1982

Several nominations for the Louis A. Hill Award, the Outstanding Engineering Research Award, and the Outstanding Teacher Award over the last several years (None awarded).

BOOKS, MONOGRAPHS, AND SECTIONS IN BOOKS

1. R.J. Veillette and J.A. De Abreu-García, "Root Locus Method," The Industrial Electronics Handbook, Chapter 27, pp. 490-503, CRC Press/IEEE Press, 1997, (Invited book chapter.)
2. A. Mohammad and J.A. De Abreu-García, "Continuous-Time and Discrete-Time Lyapunov Equations: Review and New Directions," International Series on Advances in Control and Dynamic Systems, Vol. 74, pp. 253-307, Academic Press Inc., 1996, (Invited book chapter for Special Theme Volumes on "Digital Design & Control systems Techniques and Applications.")
3. J.A. De Abreu-García and T.T. Hartley, "Multistep Matrix Integrators for Real-Time Simulation," Control and Dynamic Systems, Vol. 38, pp. 211-271, Academic Press Inc., 1990, (Book chapter.)
4. J.A. De Abreu-García and F.W. Fairman, "Balanced Realization via Permutation Symmetric Jordan Realizations," Linear Algebra in Signals, Systems, and Control, pp. 522-534, SIAM, 1988, (Invited book section.)
5. J.A. De Abreu-García, "Balancing Techniques Using Jordan Form Realizations," Ph.D. Dissertation, Queen's University at Kingston, Kingston, Ontario, Canada, September 1986.

REFEREED JOURNAL PUBLICATIONS**Being Reviewed for Publication**

1. F. Casas, J.A. De Abreu-García, S. Rittgers, and D.W. Timmons, "Grey Box Adaptive Control of Blood Pressure: A Feasibility Study on Three Models," Annals of Biomedical Engineering.
2. L.A. Cabrera, J.A. De Abreu-García, and M.J. Madaras, "Solving Two Point Boundary Value Problems Using Relaxation Techniques with Variable Time-Step," Journal of the Franklin Institute.
3. L.A. Cabrera, J.A. De Abreu-García, and M.J. Madaras, "On the Use of Relaxation Techniques for Fast Numerical Solution of Two Point Boundary Value Problems for Real-Time Optimal Control Applications," International Journal for Numerical Methods in Engineering.
4. A. Mohammad and J.A. De Abreu-García, "A Singular Value Based Model Order Reduction Method," IEEE Transactions on Industrial Electronics.

Published

1. G. Song, X. Zhou, J. Zhao, and J.A. De Abreu-García, "Tracking Control of a Piezoceramic Actuator with Hysteresis Compensation Using Inverse Preisach Model," Smart Materials Special Issue of the IEEE/ASME Transactions on Mechatronics, Vol. 10, No. 2, p. 198, 2005.
2. F. Casas, A. Orozco, W.A. Smith, J.A. De Abreu-García, and J. Durkin, "A Fuzzy System Cardio Pulmonary Bypass Rotary Blood Pump Controller," Expert Systems Applications, Vol. 26, p. 357, 2004.
3. G.C. Giakos, R. Guntupalli, J.A. De Abreu-García, N. Shah, S. Vedantham, S. Suryanarayanan, S. Chowdhury, N. Patnekar, S. Sumrain, K. Mehta, E. Evans, O. Ugweje, and A. Moholkar, "Intrinsic Sensitivity of $Cd_{1-x}Zn_xTe$ Semiconductors for Digital Radiographic Imaging," IEEE Transactions on Instrumentation and Measurement, Vol. 52, No. 5, p. 1559, 2003.

REFEREED JOURNAL PUBLICATIONS (CONTINUED)

4. J.B. Yerashunas, J.A. De Abreu-García, and T.T. Hartley, "Control of Lateral Motion in Moving Webs," *IEEE Transactions on Control System Technology*, Special Issue on Control of Industrial Spatially Distributed Processes, Vol. 11, No. 5, p. 684, 2003.
5. J.A. De Abreu-García, X. Niu, and L.A. Cabrera, "Optimization of Stability Robustness Bounds for Linear Discrete-Time Systems," *Journal of Optimization Theory and Applications*, Vol. 99, No. 2, p. 303, 1998.
6. J.A. De Abreu-García, X. Niu, and L.A. Cabrera, "Analysis and Optimization of Stability Robustness Bounds for Discretized Systems," *Journal of Optimization Theory and Applications* Vol. 99, No. 2, p. 331, 1998.
7. X. Niu, J.A. De Abreu-García, and E. Yaz, "Correction to "Improved Bounds for Linear Discrete-Time Systems with Structured Perturbations," *IEEE Transactions on Automatic Control*, Vol. AC-38, No. 5, p. 832, 1993.
8. R.J. Lalonde, T.T. Hartley, and J.A. De Abreu-García, "Least Squares Model Order Reduction Enhancements," *IEEE Transactions on Industrial Electronics*, Vol. IE-40, No. 6, p. 533, 1993.
9. J. Yang, C.S. Chen, J.A. De Abreu-García, and Y. Xu, "Model Reduction of Unstable Systems," *International Journal of Systems Science*, Vol. 24, No. 12, p. 2407, 1993.
10. X. Niu and J.A. De Abreu-García, "Robustness Considerations for p-step Matrix Integrators with Uncertainty in the Continuous System Model," *International Journal of Systems Science*, Vol. 24, No. 5, p. 943, 1993.
11. F. Mossayebi, J.A. De Abreu-García, and T.T. Hartley, "On the Generalization of the Matrix Stability Region Placement Method," *International Journal of Systems Science*, Vol. 24, No. 7, p. 1391, 1993.
12. A. Ansary and J.A. De Abreu-García, "A Computationally Attractive System Model Using a Novel One-Sided Transformation," *Journal of the Franklin Institute*, Vol. 330, No. 4, p. 677, 1993.
13. X. Niu, J.A. De Abreu-García, and T.T. Hartley, "Robustness Analysis of Two-Step Integrators with Uncertainty in the System Model," *Journal of the Franklin Institute*, Vol. 329, No. 4, p. 791, 1992.
14. X. Niu, J.A. De Abreu-García, and E. Yaz, "Improved Bounds for Linear Discrete-Time Systems with Structured Perturbations," *IEEE Transactions on Automatic Control*, Vol. AC-37, No. 8, p. 1170, 1992.
15. R.J. Lalonde, T.T. Hartley, and J.A. De Abreu-García, "Least Squares Model Reduction," *Journal of the Franklin Institute*, Vol. 329, No. 2, p. 215, 1992.
16. F. Mossayebi, T.T. Hartley, and J.A. De Abreu-García, "A Fundamental Theorem for the Model Reduction of Nonlinear Systems," *Journal of the Franklin Institute*, Vol. 329, No. 1, p. 145, 1992.
17. J.A. De Abreu-García, T.T. Hartley, and F. Mossayebi, "On Matrix Integrators for Real-Time Simulation," *IEEE Transactions on Industrial Electronics*, Vol. IE-37, No. 2, p. 113, 1990.
18. A. Ansary and J.A. De Abreu-García, "Minimization of the Scan Time for Programmable Controllers," *Journal of Science and Technology*, No. 1, p. 19, 1989.
19. J.A. De Abreu-García and F.W. Fairman, "Balanced Realization of Orthogonally Symmetric Transfer Function Matrices," *IEEE Transactions on Circuits and Systems*, Vol. CAS-34, No. 9, p. 997, 1987.
20. J.A. De Abreu-García and F.W. Fairman, "On Using Permutation Symmetric Jordan Realizations to Achieve SISO Balancing," *International Journal of Systems Science*, Vol. 18, p. 441, 1987.

REFEREED JOURNAL PUBLICATIONS (CONTINUED)

21. J.A. De Abreu-García and F.W. Fairman, "A Note on Cross Gramians for Orthogonally Symmetric Realizations," *IEEE Transactions on Automatic Control*, Vol. AC-31, No. 9, p. 866, 1986.
22. F.W. Fairman, S.S. Mahil, and J.A. De Abreu-García, "Balanced Realization Algorithm for Scalar Continuous Time Systems Having Simple Poles," *International Journal of Systems Science*, Vol. 15, p. 685, 1984.

REFEREED CONFERENCE PUBLICATIONSPresented and Published in Conference Proceedings

1. C Berron and J.A. De Abreu-García, "Fuzzy Logic Control of a Cardio Pulmonary Bypass Rotary Blood Pump," *Proceedings of The Third IASTED International Conference on BIOMECHANICS, Modelling*, pp. 260-264, Benidorm, Spain, September 7-9, 2005.
2. X. Zhou, J. Zhao, G. Song, and J.A. De Abreu-García, "Preisach Modeling of Hysteresis and Tracking Control of a Thunder Actuator System," *SPIE 10th Annual International Symposium on Smart Structures and Materials, Proceedings of SPIE*, Vol. 5049, pp. 112-125, San Diego, USA, March 3-6, 2003.
3. J.A. De Abreu-García, "Open, PC-based SERCOS Applied to the Tire Industry," invited presentation, SERCOS Interface Seminar, International Manufacturers Hanover Fair, Hanover, Germany, March 21-23, 2000.
4. L.A. Cabrera, J.A. De Abreu -García, and M.J. Madaras, "On the Solution of the Motion Control Problem as a Finite-Horizon Optimal Control Problem," *IEEE/IPEMC'2000 Third International Power Electronics and Motion Control Conference*, Vol. 3, p. 1302, Beijing, China, August 15-18, 2000.
5. L.A. Cabrera, J.A. De Abreu -García, and M.J. Madaras, "Fast Numerical Solution of the Finite-Horizon Optimal Control Problem for Real-Time Applications," *IEEE/IPEMC'2000 Third International Power Electronics and Motion Control Conference*, Vol. 3, p. 1275, Beijing, China, August 15-18, 2000.
6. F. Casas, W.D. Timmons, J.A. De Abreu-García, and S.E. Rittgers, "A Simulation Testbed for Closed Loop Drug Delivery," *19th Southern Biomedical Engineering Conference*, Blacksburg, Virginia, 2000.
7. F. Casas, W.D. Timmons, J.A. De Abreu-García, and S.E. Rittgers, "Grey Box Adaptive Control of Cardiac Output," *World Congress on Medical Physics and Biomedical Engineering*, Chicago, Illinois, 2000.
8. F. Casas, W.D. Timmons, J.A. De Abreu-García, and S.E. Rittgers, "Grey Box Adaptive Control of Mean Arterial Blood Pressure," *Proceedings 1st Joint Meeting BMES and IEEE/EMBS*, Atlanta, Georgia, 1999.
9. F. Casas, W.D. Timmons, J.A. De Abreu-García, and S.E. Rittgers, "Grey Box Adaptive Control of Cardiac Output", *CD-ROM Proceedings of the World Congress on Medical Physics and Biomedical Engineering*, July 23-28, 2000.
10. F. Casas, W.D. Timmons, J.A. De Abreu-García, and S.E. Rittgers, "Grey Box Adaptive Control of Mean Arterial Blood Pressure," *Proceedings 1st Joint Meeting BMES and IEEE/EMBS*, Atlanta, Georgia, October 16, 1999.
11. M. Oppenheimer, I. Husain, M.E. Elbuluk, and J.A. De Abreu-García, "Sliding Mode Control of the Cu'k Converter," *Proceedings of the 27th Annual IEEE Power Electronics Specialists Conference*, Vol. II, p. 1519, Bovenno, Italy, June 23-27, 1996.

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12. M. Wroe and J.A. De Abreu-García, "Analysis and Control of a Double Conveyor System with a Take-up Loop," Proceedings of the 20th International Conference on Industrial Electronics, Control, and Instrumentation (IECON'94), Vol. 3, p. 2023, Bologna, Italy, September 05-10, 1994.
 13. G. Wu and J.A. De Abreu-García, "Nonlinear Quadratic Gaussian Controller Reduction," Proceedings of the International Conference on Electronics and Information Technology, Vol. 1, p. 128, Beijing, China, August 03-05, 1994.
 14. Immel, S.M., Hartley, T.T., and De Abreu-García, J.A., "Physical Lumping Methods for Developing Linear Reduced Models for High Speed Propulsion systems," Proceedings of the IEEE Conference on Control Applications, Vol. 2, p. 866, Dayton, OH, September 13-16, 1992.
 15. Wu, G., De Abreu-García, J.A., and Qian, R., "A Sub-optimal Minimal Variance Pole Placement Controller," Proceedings of the IEEE American Control Conference, Vol. 2, p. 1480, Chicago, IL, June 24-26, 1992.
 16. A. Mohammad, J.A. De Abreu-García, and T.T. Hartley, "On the Use of the Lyapunov Equations in Continuization and Discretization of Linear Systems," Proceedings of the IEEE American Control Conference, Vol. 2, p. 1121, Chicago, IL, June 24-26, 1992.
 17. P. Patel, J.A. De Abreu-García, and T.T. Hartley, "Reduced Order Simulations," Proceedings of the IEEE American Control Conference, Vol. 2, p. 2119, Boston, MA, June 26-28, 1991.
 18. J.A. De Abreu-García and X. Niu, "Stability Robustness of P-Step Matrix Integrators with Uncertainty in the System Model," Proceedings of the IEEE American Control Conference, Vol. 2, p. 1959, Boston, MA, June 26-28, 1991.
 19. S.M. Immel, J.A. De Abreu-García, and S.M. Kline, "Load Control System Design," Proceedings of the IEEE International Conference on Systems Engineering, p. 61, Fairborn, OH, August 1-3, 1991.
 20. X. Niu and J.A. De Abreu-García, "Some Discrete-Time Counterparts to Robustness Stability Bounds," Proceedings of the IEEE American Control Conference, Vol. 2, p. 1947, Boston, MA, June 26-28, 1991.
 21. X. Lei, J.A. De Abreu-García, and T.T. Hartley, "Modeling and Simulation of a Heat Exchanger," Proceedings of the IEEE International Conference on Systems Engineering, p. 453, Fairborn, OH, August 1-3, 1991.
 22. G. Wu and J.A. De Abreu-García, "Balanced Realization from Observability Canonical Forms," Proceedings of the 22nd Annual Pittsburgh Conference on Modeling and Simulation, Vol. 22, Part 4, p. 1746, Pittsburgh, PA, May 2-3, 1991.
 23. J.A. De Abreu-García, A. Mohammad, and T.T. Hartley, "On the Simulation of the Space Shuttle Main Engine," Proceedings of the 16th International Conference on Industrial Electronics, Control, and Instrumentation (IECON'90), Vol. 1, p. 188, Pacific Grove, CA, November 27-30, 1990.
 24. A. Mohammad and J.A. De Abreu-García, "A Transformation Approach for Model Order Reduction of Nonlinear Systems," Proceedings of the 16th International Conference on Industrial Electronics, Control and Instrumentation (IECON'90), Vol. 1, p. 380, Pacific Grove, CA, November 27-30, 1990.
 25. X. Niu, J.A. De Abreu-García, T.T. Hartley, and E. Yaz, "Robustness Measures for Discrete Systems with Deterministic and Stochastic Perturbations," Proceedings of the 33rd Midwest Symposium on Circuits and Systems, Vol. 2, p. 1168, Alberta, Canada, August 12-14, 1990.
 26. T.T. Hartley, H. Killory, J.A. De Abreu-García, and N. Abu-Kamseh, "Analysis and Reduction of an Infinite Dimensional Chaotic System," Proceedings of the 33rd Midwest Symposium on Circuits and Systems, Vol. 2, p. 889, Alberta, Canada, August 12-14, 1990.

REFEREED CONFERENCE PUBLICATIONS (CONTINUED)

27. A.D. Sarantopoulos and J.A. De Abreu-García, "Tracking Design for a Gust-Alleviation Control System for Aircraft," Proceedings of the IEEE International Conference on Systems Engineering, p. 292, Pittsburgh, PA, August 9-11, 1990.
28. F Mossayebi, S.R. Pansino, T.T. Hartley, and J.A. De Abreu-García, "Real-Time Simulation of Supersonic Inlets," Proceedings of the IEEE International Conference on Systems Engineering, p. 288, Pittsburgh, PA, August 9-11, 1990.
29. X. Niu, J.A. De Abreu-García, and T.T. Hartley, "Robustness Analysis for Real-Time Simulation," Proceedings of the IEEE International Conference on Systems Engineering, p. 130, Pittsburgh, PA, August 9-11, 1990.
30. J.A. De Abreu-García and T.T. Hartley, "Matrix Integrators for Real-Time Simulation of Singular Systems," Proceedings of the IEEE American Control Conference, Vol. 1, p. 417, Pittsburgh, PA, June 21-23, 1989.
31. T.T. Hartley and J.A. De Abreu-García, "Computational Fluid Dynamic Control," Proceedings of the 1989 IEEE American Control Conference (special session on Control of Distributed Parameter Processes), Vol. 1, p. 692, Pittsburgh, PA, June 21-23, 1989.
32. A. Ansary and J.A. De Abreu-García, "A Heuristic Approach for Choosing a Model Reduction Method," Proceedings of the 20th Annual Pittsburgh Conference on Modeling and Simulation, Part 5, p. 2049, Pittsburgh, PA, May 4-5, 1989.
33. A. Ansary and J.A. De Abreu-García, "A Simple Algorithm for Time Scale Separation," Proceedings of the 15th International Conference on Industrial Electronics, Control, and Instrumentation (IECON'89), Vol. 2, p. 445, Philadelphia, PA, November 6-10, 1989.
34. R. Lalonde, T.T. Hartley, and J.A. De Abreu-García, "The Determination of Third Order Linear Models from a Seventh Order Nonlinear Jet Engine Model," Proceedings of the IEEE International Conference on Systems Engineering, p. 467, Dayton, OH, August 24-26, 1989.
35. A.D. Sarantopoulos, T.T. Hartley, and J.A. De Abreu-García, "Jury Approximations for Order Reduction of Discrete Linear Time-Invariant Systems," Proceedings of the 20th Annual Pittsburgh Conference on Modeling and Simulation, Part 5, p. 2055, Pittsburgh, PA, May 4-5, 1989.
36. T.T. Hartley and J.A. De Abreu-García, "Maintaining Stability in Real-Time Simulation," Proceedings of the 1988 Central/Northeast Regional ADIUS Conference, Ann Arbor, MI, p. 60, October 24-25, 1988.
37. X. Ma and J.A. De Abreu-García, "On the Computation of Reduced Order Models of Nonlinear Systems Using Balancing Techniques," Proceedings of the 27th IEEE Conference on Decision and Control, Vol. 2, p. 1165, Austin, Texas, December 7-9, 1988.
38. J.A. De Abreu-García, T.T. Hartley, and G.O. Beale, "Multistep Matrix Integrators," Proceedings of the 19th Annual Pittsburgh Conference on Modeling and Simulation, Part 4, p. 1699, Pittsburgh, PA, May 5-6, 1988.
39. A. Rahrooh, T.T. Hartley, and J.A. De Abreu-García, "Adaptive Integration," Proceedings of the 19th Annual Pittsburgh Conference on Modeling and Simulation, Part 4, p. 1705, Pittsburgh, PA, May 5-6, 1988.
40. X. Ma and J.A. De Abreu-García, "Eigenvalue and Output Eigenvector Assignment in Linear Multivariable Systems," Proceedings of the 19th Annual Pittsburgh Conference on Modeling and Simulation, Part 5, p. 2227, Pittsburgh, PA, May 5-6, 1988.

REFEREED CONFERENCE PUBLICATIONS (CONTINUED)

41. F.W. Fairman and J.A. De Abreu-García, "Computing Balanced Realizations of Transfer Function Matrices Using Householder Transformations," Proceedings of the 26th IEEE Conference on Decision and Control, Vol. 1, p. 471, Los Angeles, CA, December 9-11, 1987.
42. J.A. De Abreu-García and F.W. Fairman, "Balanced Realization via Permutation Symmetric Jordan Realizations," SIAM Conference on Linear Algebra in Signals, Systems, and Control, Boston, MA, August 12-15, 1986.

ABSTRACT PUBLICATIONS

1. J.A. De Abreu-García and T.T. Hartley, "Control Engineering at The University of Akron," The Ohio Journal of Science, Vol. 91, No. 2, p. 67, Columbus, OH, April 26-28, 1991.
2. A.D. Sarantopoulos, T.T. Hartley, and J.A. De Abreu-García, "Lyapunov Control Theory: An Introduction," The Ohio Journal of Science, Vol. 89, No. 2, p. 39, April 28-30, 1989.
3. M.S. Ruetty and J.A. De Abreu-García, "An Application of Reduced Order Model Techniques," The Ohio Journal of Science, Vol. 89, No. 2, p. 39, April 28-30, 1989.
4. J.A. De Abreu-García and F.W. Fairman, "Balanced Realization via Permutation Symmetric Jordan Realizations," Linear Algebra in Signals, Systems, and Control, p. A21, SIAM, 1988.

TECHNICAL REPORTS

1. "Real-Time Trajectory Optimization Strategy," L.A. Cabrera, and J.A. De Abreu -García, Research Report, The Goodyear Tire and Rubber Company, October 1999.
2. "To Err is Normable: The Computation of Frequency-Domain Error Bounds From Time-Domain Data," T.T. Hartley, R.J. Veillette, J.A. De Abreu-García, A. Chicatelli, and R. Hartmann, NASA Contractor Report NASA/CR-1998-208516, August 1998.
3. "Loop Detection," F. Casas and J.A. De Abreu-García, Final Report, The Goodyear Tire and Rubber Company, August 1998.
4. "Bar-Code Detection," F. Casas and J.A. De Abreu-García, Final Report, The Goodyear Tire and Rubber Company, August 1998.
5. "Industrial Vision," F. Casas and J.A. De Abreu-García, Final Report, The Goodyear Tire and Rubber Company, May 1998.
6. "Design of an Open-Architecture, Real-Time Control System using a Set Point Calculator as a Test Case," R. Hartmann and J.A. De Abreu-García, Research Report, The Goodyear Tire and Rubber Company, May 1997.
7. "Modeling and Simulation of Lateral and Longitudinal Motion in Moving Webs," J.B. Yerashunas and J.A. De Abreu-García, Final Report, The Goodyear Tire and Rubber Company, August 1996.
8. "Neuro-Fuzzy Force Variation Machine Grinder Control," J.A. De Abreu-García, Research Report, The Goodyear Tire and Rubber Company, August 1996.

TECHNICAL REPORTS (CONTINUED)

9. "Improved Large Perturbation Propulsion Models For Control System Design & Large Perturbation Models For High Velocity Propulsion Systems & Reduced Order Propulsion Models For Control System Design," T.T. Hartley and J.A. De Abreu-García, Final Report, Advanced Control Technology Branch, NASA Lewis Research Center, January 1992.
10. "Reduced Order Propulsion Models For Control System Design," T.T. Hartley and J.A. De Abreu-García, Interim Report, Advanced Control Technology Branch, NASA Lewis Research Center, April 1991.
11. "Analysis of the Space Shuttle Main Engine Simulation," J.A. De Abreu-García, A. Mohammad, and J.T. Welch, Final Report, Advanced Control Technology Branch, NASA Lewis Research Center, February 1990.
12. "Real-Time Simulation Methods for Propulsion System Dynamics," J.A. De Abreu-García, A. Mohammad, and J.T. Welch, Final Report, Advanced Control Technology Branch, NASA Lewis Research Center, August 1988.
13. "On Balanced Realizations and Transfer Function Matrix Synthesis," J.A. De Abreu-García, Internal Report, EE Department, Queens University at Kingston, February 1985.
14. "An M6800-Based Interface for an Ethernet-Like Computer Communications Network," B.P. Chew, J.A. De Abreu-García, and R.C. Hartling, Internal Report, EE Department, Queen's University at Kingston, April 1982.

PRESENTATIONS

1. "Control System Design and Analysis Seminar," A 4-week seminar presented to The Department of Mathematical Sciences' faculty and graduate students, University of Akron, Spring 1999.
2. "Fuzzy Logic based Force Variation Machine Grinder Control," The Goodyear Tire & Rubber Company, March 1996.
3. "Applications of Fuzzy Logic Control in Industry," The Goodyear Tire & Rubber Company, October 1995.
4. "Applications of Advanced CAD Control Software Tools to Industrial Drive Systems and Related Problems," The Goodyear Tire & Rubber Company, June 1995.
5. "Robustness Analysis for Real-Time Simulations," OAI Workshop in Robust Control, NASA Lewis Research Center, October 1991, (Invited presentation.)
6. "Functional Analysis and Robust Control: A Necessary Marriage," Functional Analysis Class, Department of Electrical Engineering, August 1990, (Invited presentation.)
7. "Real-Time Simulation: Integration timestep, stability, and accuracy," Department of Biomedical Engineering, University of Akron, April 1990, (Invited presentation.)
8. "Numerical Integration Methods for the Space Shuttle Main Engine Simulation," Advanced Control Technology Branch, NASA Lewis Research Center, February 1990.
9. "Alternate Integration Techniques for the Space Shuttle Main Engine Simulation," presented to the Advanced Control Technology Branch, NASA Lewis Research Center, October 1989.
10. "Model Reduction Techniques in Real-Time Simulation Methods for Propulsion System Dynamics," presented to the Advanced Control Technology Branch, NASA Lewis Research Center, August 1988.

PRESENTATIONS (CONTINUED)

11. "Model Order Reduction: A Novel Approach," University of Akron Electrical Engineering Graduate Student Seminar, October 1987.
12. "Real-Time Simulation Methods for Propulsion System Dynamics," Advanced Control Technology Branch, NASA Lewis Research Center, October 1987.
13. "Balanced Realization of SISO Systems," University of Akron Electrical Engineering Graduate Student Seminar, November 1986.

RESEARCH/NON-RESEARCH PROPOSALS

1. "Wright Center for Sensor Systems Engineering," Ohio Department of Development (ODOD), UA total funding of \$3.2M (Total requested \$23.84M, jointly with CSU, CWRU, OSU, KSU), J.A. De Abreu-Garcia and Shiva Sastry, *et al.*, 26 February 07 to 26 February 10.
2. "OHIO ICE: Center for Advanced Control and Measurement Systems," Ohio DoD, Wright Center of Innovation, \$1,750,000 requested and \$3,708,549 cost share for UA (Total requested \$13,271,493, Total cost share \$22,027,446) 1 June 05 to 30 June 08, J.A. De Abreu-Garcia, jointly with CSU, CWRU, and a number of ICE related companies, (Declined.)
3. "MEMS Certificate Program in Mechanical and Electrical Engineering," NSF, \$100,000, 1 January 04 to 1 January 05, C. Batur, M. Cakmak, J.A. De Abreu-Garcia, E. Sancaktar, and J. Zhe, (Declined.)
4. "Fuel Cell System Demonstration and Benchmarking Center," Ohio DoD, Third Frontier Action Fund, \$1,121,000 requested and \$560,000 cost share, 1 January 04 to 1 January 07, J.A. De Abreu-Garcia, I. Husain, T.T. Hartley, E. Shaw, and Roman Grosman, (Declined.)
5. "OHIO ICE: Accelerating the Growth of Ohio's Instrument, Control, and Electronics Technology Jobs and Business," Ohio DoD, Wright Center of Innovation, \$1,750,000 requested and \$3,708,549 cost share for UA (Total requested \$13,305,795, Total cost share \$31,675,757,) 1 November 03 to 1 November 06, J.A. De Abreu-Garcia, I. Husain, T.T. Hartley, J. Carletta, M.E. Elbuluk, S.I. Hariharan, S. Sastry, jointly with CSU, CWRU, and a number of ICE related companies, (Declined.)
6. "OCRI: Ohio Control Research Institute," Ohio DoD, Wright Center of Innovation, \$1,750,000 requested and \$3,518,133 cost share for UA (Total requested \$11,392,330, Total cost share \$23,244,315,) 1 August 03 to 1 August 06, J.A. De Abreu-Garcia, I. Husain, T.T. Hartley, J. Carletta, M.E. Elbuluk, S.I. Hariharan, S. Sastry, jointly with CSU, CWRU, and a number of ICE related companies, (Declined.)
7. "A Novel Aerial Imaging Guidance Sensor Data Fusion System for Improved Detection, Location, and Classification of Defended Targets," ONR/DoD, \$3,954,185, 1 May 2003 to 30 April 2008, G. Giakos, J. Carletta, N. Reddy, and J.A. De Abreu-Garcia, (Declined.)
8. "Design of an Advanced Control System for a Skiver (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$9,000, 1 June 1999 to 31 August 1999.
9. "Design of an Advanced Control System for a Skiver (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$11,000, 1 January 1999 to 31 May 1999.
10. "Design of an Advanced Control System for a Skiver (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$15,000, 1 September 1998 to 31 December 1998.

RESEARCH/NON-RESEARCH PROPOSALS (CONTINUED)

11. "On-Site Training Program for Electrical Engineering Graduate Students," The Goodyear Tire & Rubber Company, Inc., \$5,000, 1 June 1998 to 31 August 1998.
12. "Design, Control, and Implementation of a Dip Pickup Control System," The Goodyear Tire & Rubber Company, Inc., \$15,000, 1 June 1998 to 31 August 1998, (Goodyear Tire & Rubber technically accepted and agreed to fund this proposal, but the University and Goodyear failed to reach an agreement on intellectual property.)
13. "Instrumentation, Design, and Implementation of an Oven Nozzles' Air Flow Computer Display," The Goodyear Tire & Rubber Company, Inc., \$5,000, 1 June 1998 to 31 August 1998, (Goodyear Tire & Rubber technically accepted and agreed to fund this proposal, but the University and Goodyear failed to reach an agreement on intellectual property.)
14. "Design of an Advanced Control System for a Skiver (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$10,000, 1 June 1998 to 31 August 1998.
15. "Design of an Advanced Control System for a Skiver (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$13,104, 1 January 1998 to 1 June 1998.
16. "On-Site Training Program for Electrical Engineering Graduate Students," The Goodyear Tire & Rubber Company, Inc., \$52,330.15 (Phase I: \$14,950.15, Phase II: \$37,380), 1 October 1997 to 31 December 1998.
17. "Design of an Advanced Control System for a Skiver (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$7,500, 1 September 1997 to 20 February 1998.
18. "Design of an Advanced Control System for a Skiver (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$9,822, 12 May 1997 to 12 November 1997.
19. "Design of an Advanced Control System for a Skiver (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$5,988.11, 12 May 1997 to 15 August 1997.
20. "Development of Improved Industrial Controls Using a Set Point Calculator as a Test Case (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$16,005, 1 January 1997 to 1 August 1997.
21. "System Design Training for Industrial Applications," IMO Industries Inc., Morse Control Division, \$6,615, 2 December 1996 to 16 December 1996.
22. "Development of Improved Industrial Controls Using a Set Point Calculator as a Test Case (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$6,365.52, 1 September 1996 to 1 December 1996.
23. "Development of Improved Industrial Controls Using a Set Point Calculator as a Test Case," The Goodyear Tire & Rubber Company, Inc., \$19,994.81, 1 March 1996 to 1 September 1996.
24. "Applications of Advanced CAD Control Software Tools to Industrial Drive Systems and Related Problems (Continuation)," The Goodyear Tire & Rubber Company, Inc., \$53,263.77, 1 January 1996 to 31 July 1996.
25. "Development of an Advanced Battery Charger-Discharger System," (Phase 1 of 3) with M.E. Elbuluk, Eveready Battery Company, Inc., \$52,000.00/year, 1 November 1995 to 1 December 1996, (Eveready technically accepted and agreed to fund this proposal, but the University and Eveready failed to reach an agreement on intellectual property.)
26. "Applications of Advanced CAD Control Software Tools to Industrial Drive Systems and Related Problems," The Goodyear Tire & Rubber Company, Inc., \$43,073.10, 1 June 1995 to 1 June 1996.

RESEARCH/NON-RESEARCH PROPOSALS (CONTINUED)

27. "Applications of Advanced CAD Control Software Tools to Industrial Drive Systems and Related Problems," in conjunction with The Goodyear Tire & Rubber Company Technical Personnel. The National Science Foundation, \$25,000, June 1, 1995 to June 1, 1996, (Declined.)
28. "Prototyping of a High-Speed Weighing System," with R.J. Veillette and T.T. Hartley, Eveready Battery Company, Inc., \$31,190.74 (\$3,000 in matching funds from the Electrical Engineering Department), 1 September 1994 to 1 June 1995, (Eveready technically accepted and agreed to fund this proposal, but the University and Eveready failed to reach an agreement on intellectual property.)
29. "Advanced Training for Industrial Control Engineers," with R.J. Veillette and T.T. Hartley, The Goodyear Tire & Rubber Company, \$9,900 (matching funds in the amount of \$7,590 were obtained from the Engineering Dean's Office), 1 September 1994 to 1 May 1995.
30. "Planning Grant: Mathematical Sciences and their Applications Throughout the Curriculum," with G.W. Young, NSF, \$50,000, 1 July 1994 to 29 February 1995, (Declined.)
31. "Feasibility Analysis of a Dynamic Weighing System," with R.J. Veillette and T.T. Hartley, Eveready Battery Company, Inc., \$2,000, 1 February 1994 to 1 June 1994.
32. "Training In Control System Design For Industry Application," with R.J. Veillette and T.T. Hartley, Eveready Battery Company, Inc., \$3,024, 14 December 1993 to 16 December 1993.
33. "Advanced Training for Industrial Control Engineers," with T.T. Hartley, The Goodyear Tire & Rubber Company, \$9,900 (matching funds in the amount of \$13,150 were obtained from the Engineering Dean's Office), 2 February 1993 to 28 July 1993.
34. "Advanced Training for Industrial Control Engineers," with T.T. Hartley and R.J. Veillette, The Goodyear Tire & Rubber Company, \$9,900 (matching funds in the amount of \$11,900 were obtained from the Engineering Dean's Office), 23 January 1992 to 28 August 1992.
35. "Reduced Order Propulsion Models For Control System Design," with T.T. Hartley, NASA Lewis Research Center, \$59,986, 1 June 1990 to 30 October 1991.
36. "Applications of Advanced Control Computing," with T.T. Hartley and R.J. Veillette, Equipment Proposal that resulted in the acquisition of a \$76,000 AC-100 Control System. Integrated Systems Incorporated donated \$30,000, The University of Akron contributed matching funds in the amount of \$30,000, The Goodyear Tire & Rubber Company indirect contribution amounted to \$8,000, and \$8,000 from our own IDC accounts, 1991.
37. "Control System Software to Hardware Conversion," with T.T. Hartley and J. Grover, The Goodyear Tire and Rubber Company, \$9,000 (matching funds in the amount of \$4,207 were obtained from The University of Akron), 13 September 1990 to 12 September 1991.
38. "Advanced Training for Industrial Control Engineers," with T.T. Hartley, The Goodyear Tire & Rubber Company, \$9,750 (matching funds in the amount of \$12,750 were obtained from both The Graduate School and the Engineering Dean's Office), 28 August 1990 to 13 December 1990.
39. "Advanced Training for Industrial Control Engineers," with T.T. Hartley, The Goodyear Tire & Rubber Company, \$10,745 (matching funds in the amount of \$22,175 provided by Graduate School and the Engineering Dean's Office), 15 February 1990 to 30 May 1990.
40. "Analysis of the Space Shuttle Main Engine Simulation," with J.T. Welch, NASA Lewis Research Center, \$40,031, 1 May 1989 to 31 December 1989.

RESEARCH/NON-RESEARCH PROPOSALS (CONTINUED)

41. "Real-Time Simulation Methods for Propulsion System Dynamics," with T.T. Hartley, NASA Lewis Research Center, \$47,963, 1 February 1987 to 30 January 1988. (Grant secured by Dr. Hartley. My involvement with this grant came as a result of Dr. Hartley's leave of absence during the fall of 1987.)
42. "Faculty and Graduate Student Summer Support," The Firestone Foundation, \$5,000, 1 June 1988 to 31 August 1988.
43. "Discrete Methods for the Control of Distributed Parameter Systems," with T.T. Hartley, National Science Foundation, March 1988, (Declined.)
44. "Numerical Computation of Reduced Order Models," The University of Akron Research Challenge Grants, December 1987, (Declined.)

GRADUATE/UNDERGRADUATE ADVISING
Ph.D. Dissertations

- | | |
|-----------------|---|
| Ansary, Omid | "A Descriptor Approach to Control System Analysis and Design," 1991. |
| Lalonde, Rick | "The Calculation of Reduced Order Linear Models from High Order Nonlinear System Input/Output Data," with T. T. Hartley, 1992. |
| Mohammad, Ahmad | "Modeling Issues and The Lyapunov Equations in Dynamical Control Systems," 1992. |
| Niu, Xiaoru | "Stability Robustness for Linear Discrete-time Systems," 1994. |
| Wu, Gang | "Reduced Order Controllers for Nonlinear and Discrete-Time Systems," 1997. |
| Casas, Fernando | "Automated Titration for Mean Arterial Blood Pressure and Cardiac Output Regulation using a Grey Box Adaptive Control Strategy," with S.R. Rittgers and W.D. Timmons, 1998. |
| Berke, Alan | "A Technique to Mitigate Pulse Transmission in a Hodgkin-Huxley Model," with T.T. Hartley, 1999. |
| Cabrera, Luis | "Real-Time Trajectory Optimization Strategy," 1999. |

Master's Theses

- | | |
|---------------------|--|
| Ma, Xiaoyan | "Model Order Reduction for Linear and Nonlinear Systems," 1988. |
| Felfli, George | "Critical Analysis of Balancing Techniques," 1989. |
| Ruetty, Mark S. | "An Expert System Approach to Reduced Order Modeling," 1989. |
| Mossayebi, Faramarz | "Matrix Integrators for the Real-Time Simulation of Propulsion Systems," with T. T. Hartley and Youngstown State University, 1990. |
| Salem, Naser | "Design of a Reduced-Order-Of-Accuracy P-Step MSRP Integrator," 1991. |
| Abu-Khamseh, Naser | "An Improved Expert System Approach to Reduced Order Modeling," 1992. |

GRADUATE/UNDERGRADUATE ADVISING (CONTINUED)

Pietras, Edward	“Real-Time Control of a Thermal System Using System Build and the AC-100,” 1992.
Bangalore, Umarani	“Real Time Control of a Teeter-Totter Using the AC-100 Controller,” 1993.
Wroe, Michael	“Analysis, Control, and Design of an Industrial Process with a Take Up Loop,” 1995.
Xu, Bing	“Modeling, Analysis, and Design of a Distributed Capacitor,” 1995.
Yerashunas, J. Brad	“Lateral and Longitudinal Motion in Moving Webs: A Modern Control Approach,” 1996.
Hartmann, Richard	“Design of an Open-Architecture, Real-Time Control System using a Set Point Calculator as a Test Case,” 1997.
Zhao, Jinqiang	“System Identification and Tracking Control of a Thunder Actuator System with Hysteresis Compensation,” with Gangbing Song, Fall 2003.
Stitz, Tammy	“Convergence of The Singular Value Based Model Order Reduction Algorithm,” Fall 2003.
Berron, Carlos	“Fuzzy Control of a Cardiopulmonary Bypass Rotary Blood Pump,” Fall 2004.
Selby, Norma Jean	“State Variable Feedback Control of a Magnetically Suspended Centrifugal Blood Pump,” Fall 2007.
Kline, Steve	“Load Control System Dynamics,” (in progress - expected completion?)
Evanko, Jeffrey	“Robust Control of a Skiver System,” (in progress - expected completion?)
Morcos, Assaad	“Design and Development of a Man-Machine-Interface for a Dip Pickup Control System,” (in progress - expected completion?)

Honors Projects

Hill, Brian	“Evaluating The Medical Literature: A Computer-Based Tutorial,” 1996.
Oppenheimer, Michael	“System Identification and Minimal Realizations,” 1994.
Yerashunas, J. Brad	“Control System Theory Matlab Toolbox,” 1994.
Immel, Shaun	“Modeling and Simulation of a Load Control System,” Paper won 1st prize in both Akron and Region 2 IEEE Student Paper Competitions. IEEE Paper publication (1st EE student ever to receive these prizes,) 1991.

Special Projects

Miller, Joseph	“Computer Controlled Semaphore: Design and Implementation,” 1997.
Mitten, Jeffrey	“Controls I Lab Reorganization and Restructuring,” 1994.

Krochta, Tom “Design and Implementation of a Biquad-Based Filter,” 1993.

Farou, Adnan “Nonlinear Reduced Order Models of the Space Shuttle Main Engine,” 1993.

GRADUATE/UNDERGRADUATE ADVISING (CONTINUED)

Katsanouris, A. “Design and Implementation of a Generalized Impedance Converter,” 1992.

Marlatt, Clyde “Design and Implementation of an OP-AMP-based Inductor,” 1992.

Wroe, Michael “Modeling, Analysis, and Design of an Optimal Control Strategy for an Industrial Process,” 1992.

Falbo, James “C Programming in Controls,” 1991.

Special Projects

Niu, Xiaoru “Robustness Issues in Real-Time Simulation,” 1991.

Patel, Paulami “Reduced Order Simulations,” 1990.

Wu, Lili “Generalized Linear Matrix Equations,” 1989.

Kline, Steve “Multivariable Control Systems,” 1989.

Ansary, Omid “Model Reduction Techniques,” 1988.

GRADUATE/UNDERGRADUATE TEACHING

Courses Taught: Graduate

Control System Theory	4400:674	87-present
Optimal Control I	4400:776	88-90
Advanced Topics in Controls	4400:779	88
Model Reduction Techniques for Control Systems	4400:772	88-91/93/98
Advanced Linear Control Systems	4400:774	89/92
SP/Modern Control Systems	4400:693	Summer 88
SP/ Model Reduction Techniques	4400:693	Summer 88
SP/ Control Systems	4400:693	Summer 89
SP/ Nonlinear Model Reduction	4400:693	Fall 89
SP/ Generalized Lyapunov Matrix Equations	4400:693	Fall 89

Courses Taught: Undergraduate

Signals and Systems	4400:343	99-00
Control Systems II Lab	4400:472	89
Controls I/Controls I Lab	4400:371	90-/92-present
Active Circuits	4400:334	92-present
Discrete Time Systems	4400:333	93-98
SP/ Multivariable Control Systems	4400:391	Spring 89
SP/Control System Theory	4400:391	89-present
SP/ Active Circuits	4400:391	Spring 98/Fall 99
SP/Real-time Control Applications	4400:391	Fall 99

COURSES DEVELOPED AND REVISEDGraduate

Control System Theory (Totally Revised)	4400:674	F87/F92/F93/F96
Optimal Control I (Revised)	4400:776	Sp88
Advanced Topics in Controls (Linear Time-varying Systems)	4400:779	Sp88/F89
Model Reduction Techniques for Control Systems	4400:772	F88
Advanced Linear Control Systems (Robust Control/H-infinity)	4400:774	Sp89
Advanced Linear Control Systems (Revised)	4400:774	F92

COURSES DEVELOPED AND REVISED (CONTINUATION)Undergraduate

Signals and Systems	4400:343	Fall 99
Control System Theory	4400:391	F89/F92/F93/F96
Control Systems I (Revised)	4400:371	Sp92-present
Control Systems I Lab (Totally Redesigned)	4400:371	F92-F93/S94-present

ON-SITE TRAINING COURSES (INDUSTRY)

Goodyear Tire and Rubber Company	Six control workshops	1990-1995
Eveready Battery Company, Inc.	One control workshop	1993
IMO Industries, Inc., Morse Control Division	One control workshop	1996

PROFESSIONAL ACTIVITIES

Reviewer for:	IEEE Control Systems Society	1982-present
	IEEE Circuits and Systems society	1982-present
	IEEE Industrial Electronics Society	1987-present
	Journal of The Franklin Institute	1992-present
	ISA Automatic Control Systems Division	1994-present
Track Editor, IEEE Transactions on Industrial Electronics		1989-present
Invited for Membership in the North American Manufacturing Research Institution of the Society of Manufacturing Engineers		1996
Invited to participate in The Ambassador's Research Program to the Soviet Republics (invitation declined several times)		1992/1993
Collateral Faculty member, Ohio Aerospace Institute (OAI)		1990-present
Editor, Proceedings of the Twenty-Second Annual Pittsburgh Conference on Modeling and Simulation, Parts 1-5		1991
Coordinator, Control System Technical Group, Engineering Section, The Ohio Academy of Science		1989-1992
Academia Program Member, First IEEE Conference on Control Applications		1992-present
President Elect, Engineering Section, The Ohio Academy of Science		1992-1994

PROFESSIONAL ACTIVITIES (CONTINUED)

Session Chairman, First IEEE Conference on Control Applications Session: Flight/Propulsion Control	1992
Session Chairman, Twenty-Second Annual Pittsburgh Conference on Modeling and Simulation, Session: Control-I	1991
Session Chairman, IEEE Industrial Electronics Conference (IECON'90) Session: Simulation and Modeling	1990
Co-organizer, "Workshop On Real-Time Simulation" in conjunction with the 19th Annual Pittsburgh Conference on Modeling and Simulation	1988
Founder & organizer, with T. T. Hartley, Control Engineering Brown Bag Lunch	1988
External examiner, Mrs. Xiaoyan Ma's Dissertation defense, Queen's University at Kingston, Kingston, Ontario, Canada (Honorarium \$100 plus traveling expenses)	1991
Invited Guest, San Diego State University/NSF Special Workshop for Minorities (Honorarium \$398 plus lodging and meals)	1990
Member: IEEE Control Systems Society (reviewer)	1982 - present
IEEE Circuits and Systems society (reviewer)	1982 - present
IEEE Industrial Electronics Society (reviewer)	1987 - present
SIAM (Great Lakes Section)	1987 - 1995
Sigma Xi	1988 - present
Matlab Working Group	1988 - present
IEEE Computer Society	1989 - present
AIAA	1989 - 1995
Eta Kappa Nu	1991 - present
Integrated Systems Working Group	1991 - present

BOOK REVIEWS

Feedback Control Systems," by C.L. Phillips and R.D. Harbor, Prentice Hall, Inc., 1992. "Passive and Active Network Analysis and Synthesis," by Aram Budak, Houghton Mifflin Company.	1993
"Analog Filters," by K.L. Su, Saunders College Publishing.	1994

COMMITTEE ASSIGNMENTS

Chair: Electrical Engineering Graduate Policy Committee	1993-present
Electrical Engineering Tenure Committee	1994-1997
College of Engineering Graduate Curriculum Committee	1992-1995
Electrical Engineering Search Committee	1992-1993
Electrical Engineering Assoc. Professor Promotion Committee	1992-1997
Member: Electrical Engineering Graduate Policy Committee	1987-1993
Graduate Council Curriculum Committee	1988-1990/1993-1996 1998-1999
Ad Hoc Committee for College of Engineering Bylaws	1989
College of Engineering Graduate Curriculum Committee	1989-1990/1997-present

COMMITTEE ASSIGNMENTS (CONTINUED)

Electrical Engineering RTP Committee	1992-present
Mechanical Engineering External RTP Committee	1992
Biomedical Engineering Search Committee	1993-1994
Biomedical Engineering RTP Committee	1994-present
Academic Policies, Curriculum, and Calendar Committee (APCC)	1994-present
APCC Curriculum Subcommittee	1994-present
APCC Curriculum Process Subcommittee	1994-present
Mathematics Program Review Committee	1995-1996
North Central Association Accreditation	1996-1997
Electrical Engineering Graduate/Undergraduate Curriculum Review Ad Hoc Committee	1996-1997
Academic Advisor to H.O.L.A. (Hispanos Organizados por Lengua y Amistad) (A University of Akron registered student organization)	1998-2001
Founder and chair of the University of Akron Hispanic Steering Council (HSC) (The HSC mission is "To identify, prioritize, and facilitate the implementation of Hispanic initiatives that would benefit both, The University of Akron and its Hispanic Community. HSC charges include (1) To update current priorities and determine future initiatives, (2) To maintain and support subcommittee work for Hispanic initiatives, (3) To monitor proposals and evaluate all activities, (4) To secure institutional funding for Council activities (5) To inform the University and external communities of Council activities and outcomes.)	1999
COMMUNITY ACTIVITIES	
Eucharistic Minister (to administer Communion to the sick at local hospitals, to senior citizens in the Akron area retirement homes, and at Church during regular Mass)	1988-present
President and Chairman of the Board, TECHO, Inc., (an organization whose goal is to provide low-to-middle-income families with the means to acquire their own home)	1993-1997
Treasurer, Latin-American Community of Akron	1992-1994
Treasurer, TECHO, Inc.	1992-1994
Co-Founder and D.J., Latin-American weekly radio show "The Latin Hour," WAPS, 91.3 FM	1993-1997
Member: St. Bernard's Church Memorial Trust Fund	1991-1994
Laitly Formation Board at St. Bernard's Church	1994-1996
Board of Trustees of St. Bernard's Church	1992-1995
Latin-American Community of Akron	1987-present
Invited speaker to Revere High School's "World Awareness Day."	1993-1996
Nominated to the Board of Directors of West Side Neighbors, (Declined.)	1993
Nominated for membership at the SERRA CLUB OF AKRON, (Declined.)	1992

De Abreu-García, J.A. and Hartley, T.T., "Model Order Reduction Methods for Control System Design," Book in progress.

In Progress

Salem, N.M. and De Abreu-García, J.A., "P-Step Reduced-Order-of-Accuracy Matrix Stability Region Placement Integrators."

Salem, N.M. and De Abreu-García, J.A., "Stability Region Analysis of Full-Order and Reduced-Order-of-Accuracy Matrix Stability Region Placement Integrators."

Wu, G. and De Abreu-García, J.A., "An Approach to Nonlinear H_∞ Control."

Wu, G. and De Abreu-García, J.A., "Nonlinear Quadratic Gaussian Controller Reduction."

Wu, G. and De Abreu-García, J.A., "Model Order Reduction of Unstable Systems Via One-Sided Transformations."

Wu, G. and De Abreu-García, J.A., "Controller Reduction for Discrete Time H_∞ Balanced Truncation."

Wu, G. and De Abreu-García, J.A., "Multivariable Suboptimal Minimal Variance Controller with Tracking Ability."

Piercy, L., Hartley, T.T., and De Abreu-García, J.A., "Model Reduction and Identification Using Total Least Squares."

Submitted for Review

Niu, X., De Abreu-García, J.A., and Heitman, G.K., "Stability Robustness of Sampled-Data Systems with State Space Representations," International Journal of Systems Science.

Lalonde, R.J., Hartley, T.T., and De Abreu-García, J.A., "Least Squares Truncated Estimator Convergence Proof," Journal of the Franklin Institute.

De Abreu-García, J.A. and Wu, G., "Normalized Coprime Factorization for Discrete-Time Transfer Function Matrices," Journal of the Franklin Institute.