# CURRICULUM VITAE

Jose Alexis De Abreu-García, Ph.D.                    Department of Electrical and Computer Engineering
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<u>EDUCATION</u>  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

<u>WORK EXPERIENCE</u>

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| 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 | |

<u>RESEARCH, TRAINING AND TEACHING EXPERIENCE</u>

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, as well as 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.).

<u>ACHIEVEMENTS, AWARDS, AND SCHOLARSHIPS</u>

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| Northeast Ohio Outstanding Educator Nsoroma Award | Fall | 2007 |
| Promoted to Professor | Fall | 2000 |
| Students Siemens Award – Best ECE Teacher | Spring | 1993/1999 |
| Awarded Indefinite Tenure | Fall | 1992 |
| Promoted to Associate Professor | Fall | 1991 |
| Raymond C. Firestone Research Initiative Fellowship | AY | 1987–1988 |
| Queen's Graduate Fellowship | AY | 1985–1986 |
| Queen's Graduate Tuition Bursary | AY | 1985–1986 |
| Queen's Graduate Award | AY | 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).

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**BOOKS, MONOGRAPHS, AND SECTIONS IN BOOKS**

1.  R.J. Veillette and J.A. De Abreu-García, "Root Locus Method," The Industrial Electronics Handbook, Invited book chapter, CRC Press/IEEE Press, in print.

2.  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.)

3.  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.")

4.  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.)

5.  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.)

6.  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**

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.

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.

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**REFEREED JOURNAL PUBLICATIONS (CONTINUED)**

9.   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.

10.  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.

11.  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.

12.  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.

13.  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.

14.  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.

15.  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.

16.  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.

17.  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.

18.  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.

19.  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.

20.  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.

21.  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.

22.  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.

23.  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 PUBLICATIONS**

Presented 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.

**REFEREED CONFERENCE PUBLICATIONS (CONTINUED)**

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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, Boveno, Italy, June 23-27, 1996.

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.

**REFEREED CONFERENCE PUBLICATIONS (CONTINUED)**

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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

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.

**REFEREED CONFERENCE PUBLICATIONS (CONTINUED)**

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.

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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.

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.

## ABSTRACT PUBLICATIONS (CONTINUED)

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.

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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.

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.


## TECHNICAL REPORTS (CONTINUED)

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.

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**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.

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.

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**RESEARCH/NON-RESEARCH PROPOSALS**

1. "Developing Load Matching Technology to Improve HVAC and Domestic Hot Water Systems," Ohio Department of Development (ODoD) Research Commercialization Program, ECE requested funding of $470K (Total request $2M, jointly with RW Beckett Company, Essential Research, and Linear Dimensions/Sensiics), Joan Carletta, Tom Hartley, Nathan Ida, Robert Veillette and J.A. De Abreu-Garcia, 07 November 2008, (Declined.)

2. "Northeast Ohio Advanced Vehicle Power Systems," Ohio Research Scholars Program, ECE/ME requested funding of $6.9M (Total request $15.2M, jointly with YSU and Parker Hannifin), Malik Elbuluk, Celal Batur and J.A. De Abreu-Garcia, March 2008, (Declined.)

3. "Wright Center for Sensor Systems Engineering," Ohio Department of Development (ODoD), $3.2M (Total request $23.84M, jointly with CSU, CWRU, OSU, KSU), J.A. De Abreu-Garcia and Shiva Sastry, 26 February 2007 to 26 February 2010.  Alex's share $2.2M.

4. "Wright Center for Advanced Drive Technologies," Ohio Department of Development (ODoD), ECE requested funding of $4.9M (Total request $16.4M, jointly with UT and OSU), Joan Carletta, Tom Hartley, Iqbal Husain, Robert Veillette and J.A. De Abreu-Garcia, 21 June 2006, (Declined.)

5. "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.)

6. "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.)

7. "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.)

8. "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.)

9. "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.)

10. "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.)

11. "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.

12. "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.


**RESEARCH/NON-RESEARCH PROPOSALS (CONTINUED)**

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13. "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.

14. "On-Site Training Program for Electrical Engineering Graduate Students," The Goodyear Tire & Rubber Company, Inc., $5,000, 1 June 1998 to 31 August 1998.

15. "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 IP.)

16. "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.)

17. "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.

18. "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.

19. "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.

20. "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.

21. "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.

22. "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.

23. "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.

24. "System Design Training for Industrial Applications," IMO Industries Inc., Morse Control Division, $6,615, 2 December 1996 to 16 December 1996.

25. "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.

26. "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.

27. "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.

28. "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.)

**RESEARCH/NON-RESEARCH PROPOSALS (CONTINUED)**

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29. "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.

30. "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.)

31. "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.)

32. "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.

33. "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.)

34. "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.

35. "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.

36. "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.

37. "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.

38. "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.

39. "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.

40. "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.

41. "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.


**RESEARCH/NON-RESEARCH PROPOSALS (CONTINUED)**

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42.   "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.

43.   "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.

44.   "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.)

45.   "Faculty and Graduate Student Summer Support," The Firestone Foundation, $5,000, 1 June 1988 to 31 August 1988.

46.   "Discrete Methods for the Control of Distributed Parameter Systems," with T.T. Hartley, National Science Foundation, March 1988, (Declined.)

47.   "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.

**GRADUATE/UNDERGRADUATE ADVISING (CONTINUED)**

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|---|---|
| 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. |
| 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

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|---|---|
| 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

**GRADUATE/UNDERGRADUATE ADVISING (CONTINUED)**

| | |
|---|---|
| Miller, Joseph | "Computer Controlled Semaphore: Design and Implementation," 1997. |

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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.

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 | 4400:677 | 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 |

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**COURSES DEVELOPED AND REVISED**

Graduate

| | | |
|---|---|---|
| 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 |

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**

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|---|---|---|
| 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 |

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|---|---|
| Session Chairman, Third IASTED International Conference on BIOMECHANICS | 2005 |
| Track Editor, IEEE Transactions on Industrial Electronics | 1989-2004 |
| 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 |

**PROFESSIONAL ACTIVITIES (CONTINUED)**

| | |
|---|---|
| Academia Program Member, First IEEE Conference on Control Applications | 1992-present |
| President Elect, Engineering Section, The Ohio Academy of Science | 1992-1994 |

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Session Chairman, First IEEE Conference on Control Applications          1992
Session: Flight/Propulsion Control

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

Member:   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          1993-2001
          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
          Electrical Engineering RTP Committee                      1992-present

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|---|---|
| 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 2002-2006 |
| 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**

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| Eucharistic Minister (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 |

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|---|---|---|
| Member: | St. Bernard's Church Memorial Trust Fund | 1991-1994 |
| | Laity 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 |

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|---|---|
| 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 |