Professor - Engineering Technology
College of Technology
University of Houston

Education

Ph.D. Electrical Engineering (Control Systems), The Ohio State University, August 1988. Dissertation: "*Modeling and Control of Planar Flexible Structures with Application to an Optical Tracking System*".
Advisors: Dr. Ümit Özgüner, Dr. Steve Yurkovich.

M.S. Electrical Engineering (Digital Systems), The Ohio State University, August 1984. Thesis: "*The Design and Construction of an Apple II-Based Software Debugging Aid for the AIM 65 Microcomputer*"
Advisor: Dr. Ronald K. Long.

B.S. Electrical Engineering – Computer Option, The Ohio State University, March 1981.

Biographical Sketch

In July 1988 he joined the Electrical Engineering Department at Tulane University in New Orleans, LA, as an Assistant Professor and was promoted to tenured Associate Professor in July 1994. He was elected Chair of the new Department of Electrical Engineering and Computer Science in July 1996, in charge of BS, MS, and PhD programs and a $2M facility renovation task. He returned to full-time teaching and research in July 1998.

In August 2002, he joined the University of Houston as Professor and Chair of the new Department of Engineering Technology through August 2009, and as Associate Dean for Research & Graduate Studies through July 2010. Managing a departmental budget that exceeded $2M as Department Chair (2002-2009), he was responsible for B.S. degree programs in Biotechnology (new in 2007), Computer Engineering Technology, Construction Management (new in 2003), Electrical Power Engineering Technology, Mechanical Engineering Technology, and Surveying Engineering Technology (new in 2007); and for a Master's degree with several specialization tracks. He was appointed Director of the Center for Technology Literacy in 2006 and worked with faculty to increase the Center's funding portfolio from less than $100K to over $4M by 2010. During his Associate Dean tenure (09-10), the College graduate enrollment grew by 28%, the College was awarded the largest single federal contract by the DOE ($2.5M), and the Master of Technology programs in the College were converted to Master of Science, while also creating two new tracks in Systems Control Technology and in Mechanical Engineering Technology.

In January 2012, he joined the College of Engineering at the University of North Texas as Professor and Chair of the Department of Engineering Technology, responsible for BSET degrees in Construction, Electrical, and Mechanical Engineering Technology, and an MS in Engineering Technology with concentrations in Construction Management, Engineering Management, Electrical Systems and Mechanical Systems. Total departmental enrollment increased by 40% during fall 2012-017, and faculty maintained over $500K in average annual expenditures from external grants.

In August 2018, he rejoined the College of Technology at the University of Houston and served as Professor & Chair of the Information and Logistics Technology Department overseeing programs in Computer Information Systems, Information Security, Technology Leadership & Innovation Management, and Digital Media. In January 2021, he returned to full-time teaching and research as Professor in the Department of Engineering Technology.

Since 1989, he has managed research grants, contracts, and fundraising projects from federal, state, and private agencies exceeding $4M. He is the co-recipient of a US patent on a 3D ultrasonic ranging system with application to motion detection in flexible structures and has published over 90 articles on the synthesis of sensing and control algorithms and on educational topics. His technical publications are on applications to electromechanical systems and industrial processes

such as redundant robots, flexible structures, automatic arc-welding (temperature field sensing and control), rocket propulsion testing, and biomedical/biological processes. His teaching interests are in the Systems Control Technology area, received the Faculty Award for Excellence in Teaching from the Graduate School Student Association of Tulane University (1995-96), and has mentored over 30 students. He has consulted for Technology International Inc., LaPlace, LA (1994), on developing a microprocessor educational toolkit; for Intralox, New Orleans, LA (1998) on modeling of a conveyor-belt; and for Dickstein, Shapiro, Morin & Oshinsky LLP (2001-2006) on patent litigation providing technical and claim interpretation opinions, deposition testimony, courtroom testimony, and infringement reports dealing with microprocessor-based remote control of TV security camera equipment.

He was a Technical Associate Editor of *IEEE Control Systems Magazine,* (92-95), and served at different times in a variety of positions such as Finance Chair, Exhibits Chair, Program Co-Chair, Publicity Chair and Associate Editor for national and international conferences. At the University of Houston, he was Director of the Center for Technology Literacy (CTL) during 2006-10 and co-directed the Texas Manufacturing Assistance Center-Gulf Coast during the 2005-06 Center's transition from the College of Engineering to the College of Technology. He was also a member of the TMAC Executive Council (2006 -2010) and served as Chair of the Council (2007-09).

He is a Senior Member of the *Institute of Electrical and Electronic Engineers (IEEE) Control Systems Society* and a Member of the *American Society for Engineering Education (ASEE*). He was a Board member (2005-08) for the Engineering Technology Leaders Institute of the ASEE, was elected Director of 4-year ET Programs (2015-16) serving in the ET Council of ASEE, served as Chair-Elect of the ET Council of ASEE (2016-18), and was an external reviewer for the National Academy of Engineering February 2017 report "Engineering Technology Education in the United States".

Work Experience

1/21 – date	Professor, Engineering Technology, University of Houston
8/18 – 1/21	Professor and Chair, Information & Logistics Technology, University of Houston
1/12 – 7/18	Professor and Chair, Engineering Technology, University of North Texas
8/10 – 12/11	Professor, Engineering Technology, University of Houston
9/09 – 7/10	Professor and Associate Dean for Research & Graduate Studies, College of Technology, University of Houston
9/02 – 9/09	Professor and Chair, Engineering Technology, University of Houston.
6/02 – 8/02 6/01 – 8/01	Summer Faculty Fellow, NASA Stennis Space Center, Mississippi
7/98 – 8/02	Associate Professor, Department of EECS, Tulane University.
7/98 – 12/98	Visiting Research Professor, Electrical Engineering, Universidad de Carabobo, Valencia, Venezuela. (Sabbatical leave.)
7/96 – 6/98	Associate Professor and Chair, Department of EECS, Tulane University.
7/94 – 7/96	Associate Professor, Electrical Engineering, Tulane University.
6/95	Visiting Research Professor, Universidad Autónoma de Méjico
7/95	Visiting Research Professor, Universidad Simón Bolivar, Caracas, Venezuela
6/91 – 8/91	Visiting Researcher, NASA Langley Research Center, Hampton, Virginia.
9/88 – 6/94	Assistant Professor, Department of Electrical Engineering, Tulane University.
9/86 – 9/88	Graduate Research Assistant, EE Dept., The Ohio State University.
6/84 – 9/86	Graduate Teaching Assistant, EE Dept., The Ohio State University.
3/86 – 4/86	Invited Lecturer, CINDE, San Jose, Costa Rica.

Research Summary (References in brackets are from the funding and publication lists)

In the late 1980's to the 1990's, some of my research efforts were funded by the Louisiana Board of Regents [1], the Louisiana/NASA consortium [7, 8], NASA [3] and NSF [6, 10] and concentrated on modeling and control of flexible systems resulting in publications [1-50]. A 3D Ultrasonic Ranging System was designed and built under support by the Gulf South Research Foundation [2] resulting in the award of a US patent, and publications [11,13,14,19,24,65]. A four degree-of-freedom redundant robot was built from the ground up to investigate self-motion control in the presence of vibratory disturbances. The Louisiana Board of Regents [1], NSF [6], and the Louisiana/NASA consortium [7, 8] supported that work. The robot was the central electromechanical system for additional research projects; it was instrumented with dSPACE data acquisition and control boards. Publications [8, 9-12, 23, 31, 36] use various versions of this setup as a simulation example.

I have collaborated to develop sliding mode controllers and observers for a class of distributed parameter systems. The central theme was temperature field control in a robotic welding environment. This work was supported by the Louisiana Board of Regents [9] and NSF [10, 12]. Our findings are summarized in [32,37,39,41,43-45,48-50].

During the 2001 and 2002 summers, I collaborated with other engineers at NASA Stennis to develop/validate a comprehensive model of various subsystems of their rocket propulsion test facility using Boeing's Easy5 Software package. Real-time data was used for model validation. This work was supported by the Louisiana Space Consortium [13] and NASA Stennis [14]. Results are summarized in publications [54-56, 58].

I have looked at problems that combine biomedical and control engineering including the synthesis of defibrillation waveforms that minimize a weighted time/energy cost criterion, and issues related to distributed parameter modeling of heart tissue and finite dimensional realizations for control discussed in publications [52, 60]. We have also considered expert control of variable resistance machines for musculoskeletal rehabilitation [57] supported by [15].

Under 4 years of funding by the United Engineering Foundation [27], we built a multi-department, multi-college, and multi-university project "Invenciones de la Inventiva" (Engines in Spanish) that reaches out to the Hispanic population - the fastest growing segment in the US, using Radio Stations. We continue to envision a gradually sustainable effort that utilizes Invenciones in multiple ways to touch the general Hispanic community and increase its awareness of engineering, to impact our efforts that instill enthusiasm for engineering in K-12 students and teachers, to renew that enthusiasm in Community College students and instructors, and to increase the number of engineering College-bound students – especially women.

I am interested in mentoring students in translational research from the Systems Control Technology literature to practical implementations. Examples include implementation of a deadbeat controller design [59] with application to optimal defibrillator pulse synthesis [52, 60, 64]; decoupling and MIMO optimal PI controllers [26] for chemical processes; design of controllers to automate a heat shrinking device for cable harnesses [66]; modeling and control of Stirling engines; co-simulation design of constrained PID controllers [67]; and modeling and control of infectious disease [68].

Funding (Research Grants*, Contracts**, and Fundraising***)

1. **Louisiana Board of Regents***, 7/89 - 12/92, E. Barbieri and P. Rastgoufard, "*Control Strategies for Flexible Manipulators with Rigid End-Effectors: A Large Scale Systems Approach*" ($148K).
2. **Gulf South Research Foundation***, 4/91-12/92, F. Figueroa and E. Barbieri, "*Ultrasonic 3-Dimensional Vibration Measurement System*" ($40K). A U.S. Patent was awarded for this work.
3. **NASA Langley Research Center***, 6/91-8/93, E. Barbieri, "*Momentum Management in Redundant Manipulators for Vibration Suppression*" ($40K). Development of controllers employing inertial devices.
4. **Louisiana/NASA Consortium (LaSPACE)***, 7/92-12/93. E. Barbieri, "*Instruction and New Research Direction in Variable Structure Control*" ($5K). Organization of a series of lectures.
5. **TRW/Tulane***, 1993, 1995 (Co-PI) "*Intelligent Robotic Control and Sensing in Hazardous Waste Management*" ($8K). Group Seed grants.

6. **NSF (CISE)***, 3/94-6/95, E. Barbieri and F. Figueroa. *"Research Station for Sensing and Control"*. ($26K) Research equipment grant to set up a DSP-based control station.
7. **Louisiana/NASA Consortium (LaSPACE)***, 6/94-5/95. E. Barbieri, *"Control of Redundant Robots for Space Applications"* ($19K). Parameter identification experiments on a redundant manipulator.
8. **Louisiana/NASA Consortium (LaSPACE)***, 12/95-12/96. E. Barbieri, *"Nonlinear Control of Redundant Robots"*. ($19K) Sliding mode control design and experimentation on a redundant manipulator.
9. **Louisiana Board of Regents, Industrial Ties Research*** 7/96 - 12/99, E. Barbieri and S. Drakunov, "*Sliding Mode Control of a Welding Process*" ($88K). Design of sliding mode controllers for robotic arc welding.
10. **NSF, GOALI*** 7/96 - 8/98, E. Barbieri and S. Drakunov, "*Sliding Mode Control of a Welding Process*" ($49K). Design/implementation of sliding mode controllers for robotic arc welding.
11. **BOR Lab Enhancement Program***, E. Barbieri, S. Drakunov, A. D. Christiansen, J. Jennings, "An Interdisciplinary Control Laboratory" ($25K), 7/97-6/98. Development of a modern control lab.
12. **NSF, Dynamic Systems and Control Division***, S. Drakunov, E. Barbieri, F. Figueroa, "*Temperature Field Sensing and Control: A Welding Application"*, ($200K) 1/99-12/01. Theoretical studies in the development of robust nonlinear control algorithms for a class of distributed parameter systems.
13. **Louisiana/NASA Consortium (LaSPACE)***, 3/02-3/03. E. Barbieri, *"Small Signal Modeling of NASA SSC Propulsion Test Facility Components"*. ($19K) Rocket propulsion control model development.
14. **NASA Stennis Space Center***, 2/20/03-2/20/05. E. Barbieri, "*Matlab GUI for a Fluid Mixer*", ($60K) Graphical user interface development for rocket propulsion modeling and control.
15. **Grants to Enhance and Advance Research (GEAR)***, University of Houston, 9/03-12/04. E. Barbieri, C. Layne, H. Malki, W. Shireen, G. Reddy, F. Attarzadeh, "*Prototype EVRA Machine for Rehabilitation*" ($24K.)
16. **Professional Surveying Educational Foundation*****. 2003-10 Surveying Professorship ($450K). Development effort with Dean's Office and Program faculty, University of Houston.
17. **Global Unisource Inc**.**, 2004-2010: Executive Training Workshops for Sinopec Oil Industry professionals ($120K) at the University of Houston.
18. **SBC/ATT College of Technology Alliance*****, D. Benhaddou, S. Chacon, D. Gurkan, X. Yuan, J. Lustberg, and E. Barbieri, 2005, ($250K). Development effort resulting in the establishment of the AT&T Technology Lab at the University of Houston.
19. **Texas Higher Education Coordinating Board**** 03/05-08/06. E. Barbieri and H. Malki, "Recruiting & Retention of First Generation College Students in Technology Disciplines", ($75K). Scholarships and College Enrollment Workshops.
20. **NASA Johnson Space Center****, Spring 2006, F. Attarzadeh, J. Yuan, R. Pascali, E. Barbieri, V. Gallardo, and T. Mikle, CORE: Coordination Of Robotics Education ($20K).
21. **University of Houston FDIP B***, "Hybrid Orientation Program for Instructional Excellence - Targeting Teaching Assistants/Fellows and Part-Time Faculty", E. Barbieri, M. Moges, V. Gallardo (Engineering Technology) and C. Ramirez, A. Boggiano (Modern & Classical Languages), $25K, 2006-07.
22. **National Institute of Standards and Technology (NIST)**** MEP Extension TMAC Gulf Coast Operating Budget 2006-07, $1.7M, W. Fitzgibbon (PI), E. Barbieri (Interim Co-Director of TMAC Gulf Coast).
23. **National Institute of Standards and Technology (NIST)**** MEP Extension, 2006-07. D. Casani (UT – Arlington), G. Sera (Texas A&M – TEEX), and E. Barbieri (University of Houston), "Manufacturing Assistance for Companies in FEMA-Designated Disaster Areas of Texas". Total: $800K; TMAC Gulf Coast at University of Houston: $540K.
24. **Department of Commerce, Economic Development Administration****, "Center for Technology Literacy: An Upward Mobility Strategy for Economic Growth", E. Barbieri, S. Lee, L. Song, $293,550 (plus $295K matching), 7/07-6/10. Workforce development workshops.

25. **NASA Johnson Space Center****, Fall 2009, E. Barbieri, F. Attarzadeh, and K. Cohen, CORE: Coordination Of Robotics Education ($28K).
26. **Department of Education***, 10/1/09-12/31/11, "Transformational Paradigm for the Engineering Profession (TPEP)", E. Barbieri and W. Fitzgibbon, $149K. Exploring undergraduate models for E and ET.
27. **United Engineering Foundation****, "Invenciones de Nuestra Inventiva: Employing KUHF-Engines of Our Ingenuity- to Increase Engineering Awareness and Education Opportunities in the Hispanic Community"
    i. E. Barbieri, A. Boggiano, and M. Soliño, University of Houston , Jan-Dec 2011 ($90,500).
    ii. A. Bencomo, E. Barbieri, A. Boggiano, and B. Robin, University of Houston $70,200; University of North Texas $21,800, Jan-Dec 2012.
    iii. E. Barbieri, A. Boggiano, and A. Albarran (University of North Texas $87,950); A. Bencomo and B. Robin (University of Houston $15,900), Jan-Dec 2013.
    iv. E. Barbieri and A. Boggiano, University of North Texas, $50,000 Jan-Dec 2014. Project websites: http://www.uh.edu/engines/episodes-spanish.html ; http://invenciones.coe.uh.edu/index.cfm ; http://www.kntu.com/index.php?option=com_content&view=category&id=34&Itemid=69
28. **University of North Texas, Provost's Retention Program***** E. Barbieri, AIR/RMS Retention/Scholarship Program in Engineering Technology, 2012-2013, ($26,000)
29. **Labinal/Safran Inc.****, Denton, Texas. H. Bostanci, A. Nouri, and E. Barbieri, "Automated Heat Shrink Harnessing Device (AHSHD) – Phase I, $14,356 (2013)
30. **UNT Lifelong Learning and Professional Development*****, E. Barbieri**,** Executive Training Workshops on Fall & Slip Prevention, $76,252 (2015-16)
31. **VarioSystems Inc.*****, Southlake Texas. E. Barbieri and A. McColl, "Online/Hybrid Slip and Fall Prevention Certificate Program", $100,000 (2018)

Publications (Student co-authors are underlined)

1. Ü. Özgüner and E. Barbieri, "Decentralized control of a class of distributed parameter systems", Proceedings of the IEEE Conf. on Decision and Control, pp.932-935, 12/85.
2. E. Barbieri, Ü. Özgüner, and S. Yurkovich, "Control of multiple-mirror/flexible structures in slew maneuvers", Proceedings of the AIAA Conference on Guidance and Control, pp. 379-388, Monterey, CA, August 1987.
3. E. Barbieri and Ü. Özgüner, "Rest-to-rest slewing of flexible structures in minimum time", Proceedings of the IEEE Conf. on Decision and Control, pp.1633-1638, Austin, TX, 12/88.
4. E. Barbieri and Ü. Özgüner, "Unconstrained and constrained mode expansions for a flexible slewing link", ASME Journal of Dynamic Systems, Measurement & Control, V.110, N.4, pp.416-421, 12/88.
5. E. Barbieri, Ü. Özgüner, and S. Yurkovich, "Vibration compensation in optical tracking systems", AIAA J. of Guidance, Control and Dynamics, V.12, No.4, pp.585-592, 7/89.
6. E. Barbieri, "Comments on tracking control of a flexible robot link", IEEE Transactions on Automatic Control, Vol.34, No.11, pp.1215-1216, 11/89.
7. E. Barbieri, "On modelling of segmented mirrors mounted on flexible supporting structures", Proceedings of the IEEE Conference on Decision and Control, pp.710-711, Tampa, FL, 12/89.
8. E. Barbieri and Ü. Özgüner, "A control approach for robots with flexible links and rigid end-effectors", Proc. of the NASA Conf. on Space Telerobotics, Vol.5, pp.41-50, 1/1989.
9. E. Barbieri and F. Figueroa, "Optimal strategies for self-motion control in redundant flexible manipulators", Proceedings of the ASME Winter Annual Meeting, pp.255-260, San Francisco, CA, December 1989.
10. E. Barbieri and Q. Wang, "An example of optimal set point relegation for self- motion control in redundant flexible robots", Proceedings of the IEEE Int. Conference on Robotics and Automation, pp.632-637, Cincinnati, OH, 5/1990.
11. E. Barbieri and F. Figueroa, "Experiments on identification and control of flexible structures using an ultrasonic ranging system", Proceedings of the IEEE Int. Conference on Systems Engineering, pp.17-20, Pittsburgh, PA, August 1990.

12. E. Barbieri, "Configuration control under optimal assignment of set-points in flexible robots", Proceedings of the American Control Conference, pp.169-174, San Diego, CA, 6/90.
13. F. Figueroa and E. Barbieri, "Increased measurement range via frequency division in ultrasonic phase detection methods", Acustica, Vol.73, No.1, pp.47-49, 1/91.
14. F. Figueroa and E. Barbieri, "An ultrasonic ranging system for structural vibration measurements", IEEE Transactions on Instrumentation and Measurement, Vol.40, No.4, pp.764-769, 8/91.
15. E. Barbieri, "On transfer functions and control of a flexible slewing link", Proceedings of the American Control Conference, pp.1431-1432, Boston, MA, June 1991.
16. E. Barbieri and E. Dunn, "Effects of constrained and unconstrained expansions on pole-zero maps and proportional control of a flexible slewing link", Proceedings of the ASME Winter Annual Meeting, pp.1-6, Atlanta, GA, 12/91. DSC-Vol.31, Ed. W.J. Book and F. Paul.
17. R.C. Montgomery and E. Barbieri, "Role of inertial devices in controlling space-based robot arms", Proceedings of the Third Annual NASA-CIRSSE Conference, pp.121-128, 11/91.
18. E. Barbieri, S.P. Kenny, and R.C. Montgomery, "Nonlinear modeling of a long flexible manipulator and control by inertial devices", Proc. of the American Control Conf., pp.1695-1699, Chicago, IL, June 1992.
19. F. Figueroa, E. Doussis, and E. Barbieri, "Ultrasonic ranging system to measure 3-D position of a target point for use in feedback control systems", Proceedings of the ASME Winter Annual Meeting, Anaheim, CA, November 1992, Session 92-WA/DSC-3.
20. E. Barbieri and Ü. Özgüner, "A new minimum-time control law for a one-mode model of a flexible slewing structure", IEEE Transactions on Automatic Control, Vol.38, No.1, pp.142-146, 1/93.
21. E. Barbieri, "Stability analysis of a class of interconnected systems", ASME Journal of Dynamic Systems, Measurement and Control, Vol.115, No.3, pp.546-551, 9/93.
22. E. Barbieri, "Single-input/single-output transfer functions for a flexible slewing link", Journal of Robotic Systems, Vol.10, No.7, pp.913-929, 10/93.
23. Y. D. Fuentes, E. Barbieri, J. F. Figueroa, and E. Doussis, "TUMA I: Design and modeling of a four degree-of-freedom planar redundant arm", ASME Winter Annual Meeting, DSC-Vol.49, pp.257-261, New Orleans, LA, Nov. 1993.
24. F. Figueroa, A. Mahajan, and E. Barbieri, "Generic model of an autonomous sensor", Proceedings of the X Reunión Nacional de Inteligencia Artificial, Mexico, D.F., 9/93.
25. E. Barbieri, "On the lqr problem for phase canonic systems", Proceedings of the American Control Conference, pp.3174-3175, San Francisco, CA, June 1993.
26. E. Barbieri, "A multi-input/multi-output optimal PI-controller for redundant robots in the presence of flexible disturbances," Optimal Control Applications & Methods, V.15, No.1, 1/94, pp.35-48.
27. E. Barbieri, "A Solution to the Discrete-Time ARE", Proceedings of the American Control Conference, Baltimore, MD, June 29-July 1, 1994, pp.1153-1154.
28. E. Barbieri, "Nonlinear Algebraic Gain Equations for the Single-Input Linear Quadratic Regulator", Proceedings of the IEEE Conf. on Decision and Control, Orlando, FL, 12/94.
29. Y. D. Fuentes and E. Barbieri, "An Approach to Independent-Joint Adaptive Control for the TUMA I", Proceedings of the 1994 IEEE SoutheastCon, Miami, Florida, April 10-13, 1994.
30. J. Donato and E. Barbieri, "Mathematical Representation of Fuzzy Membership Functions for Low-Level Implementations", Proc. of the 27th IEEE Southeastern Symp. on Systems Theory, 3/95.
31. David Silver and E. Barbieri, “A Redundant Manipulator Research Testbed”, Proc. of the IEEE International Conf. on Control Applications, Dearborn, MI, Sept. 96, pp.217-222.
32. S. Drakunov, E. Barbieri, and D. Silver, “Sliding Mode Control of a Heat Equation with Application to Arc Welding”, Proc. of the IEEE Int. Conf. on Control Applications, Dearborn, MI, 9/96, pp.668-672.
33. C-C Tong, F. Figueroa and E. Barbieri, "Hardware Method for Accurate Measurements in a Transmit-Receive Ultrasonic Ranging System," Proceedings of the ASME Dynamic Systems and Control Division, ASME International Mechanical Engineering Congress and Exposition, 11/96, Atlanta, Georgia, USA, pp. 741-746.
34. J. Donato and E. Barbieri, "Domain Transformation for Fuzzy Membership Functions and Inference Engine", 28th IEEE Symposium on Systems Theory, 4/96.
35. E. Barbieri and Chia-Chang Tong, "On the Minimum-Time Control of a One-Mode Model of a Flexible Structure", 28th IEEE Symposium on Systems Theory, 4/96, LSU, Baton Rouge, LA.

36. D. Silver and E. Barbieri, "Self-Motion Control Experiments Using TUMA I and dSPACE", 28th IEEE Symposium on Systems Theory, 4/96, Louisiana State University, Baton Rouge, LA.
37. P. Grossimon, E. Barbieri, and S. Drakunov "Sliding Mode Control of an Inverted Pendulum", 28th IEEE Symposium on Systems Theory, April 1996, Louisiana State University, Baton Rouge, LA.
38. M. Issa and E. Barbieri, "Optimal P-Lead and PI-Lead Controller Design", 28th IEEE Symposium on Systems Theory, April 1996, Louisiana State University, Baton Rouge, LA.
39. R. Salinas, E. Barbieri, and S. Drakunov, "Time Sub-Optimal/Sliding Mode Control of a Flexible Structure", 28th IEEE Symp. on Systems Theory, 4/96, Louisiana State Univ., Baton Rouge, LA.
40. R. Flores, S. Drakunov, and E. Barbieri, "An ∞-LQ Regulator and Sliding Mode Controller for a Flexible Structure with Synchronous Motor", 28th IEEE Symp. on Systems Theory, 4/96, Louisiana State Univ., Baton Rouge, LA.
41. S. Drakunov, E. Barbieri and D. Silver, "Sliding Mode Control in Arc Welding'', Proceedings of the 28th Southeastern Symposium on System Theory, March 31- April 3, 1996.
42. E. Barbieri and Chia-Chang Tong, "Addendum to A new minimum-time control law for a one-mode model of a flexible slewing structure", IEEE Transactions on Automatic Control, V.42, N.3, 3/97, pp.431-433.
43. S. Drakunov and E. Barbieri, “Sliding Surfaces Design for Distributed Parameter Systems”, Proc. of the American Control Conference, June 1997, pp. 3023-3027.
44. S. Drakunov and E. Barbieri, “Manifold control of a class of distributed parameter systems using modal expansion”, in Proc. of the IEEE Conf. on Decision and Control, 12/97, San Diego, CA.
45. S. Drakunov, E. Barbieri, R. Salmon, and D. Silver, “Temperature Field Control via Sliding Modes”, Proceedings of the Conference on Control Applications, Hartford, CT, Sep. 97.
46. D. Silver, R. Salmón, E. Barbieri, and S. Drakunov, “Towards an Integrated Welding Testbed”, Proceedings of the American Control Conference, June 1998, Philadelphia, PA, pp.1023-1027.
47. E. Barbieri and Rocio Alba-Flores, “A New Look at the Infinite-Horizon Linear-Quadratic Tracking Problem”, IEEE Conference on Decision and Control, Tampa, FL, December 1998, pp.4444-4449.
48. E. Barbieri and S. Drakunov, “Manifold Control and Observation of Jordan Forms with Application to Distributed Parameter Systems”, IEEE Conf. on Dec. & Control, Tampa, FL, 12/98, pp.2396-2397.
49. E. Barbieri, S. Drakunov, and F. Figueroa, “Further Results on Sliding Manifold Design and Observation for a Heat Equation”, 6th IEEE Mediterranean Conf. on Control and Automation, Sardinia, Italy, June 1998. In “Theory and Practice of Control Systems”, World Scientific Publishing Co., Inc., Edited by A. Tornambe, G. Conte, and A. M. Perdon, 1/99.
50. E. Barbieri, S. Drakunov, and F. Figueroa, “Further Results on Sliding Manifold Design and Observation for a Heat Equation”, Intern. Journal of Kybernetika, V.36, N.1, pp.133-147, 2000.
51. E. Barbieri and R. Alba, “On the Infinite-Horizon LQ Tracker”, Systems and Control Letters, 2000, V.40, #2, pp.77-82.
52. S. Muzdeka and E. Barbieri, “A New Approach to Optimization-Based Defibrillation”, Proc. of the 38th Annual Rocky Mountain Bioengineering Symp., April 20-22, 2001. Best of Session Award.
53. C-C. Tong, F. Figueroa, and E. Barbieri, “A Method for Short or Long Range Time-of-Flight Measurements using Phase-Detection with an Analog Circuit”, IEEE Transactions on Instrumentation and Measurements, V.50, No.5, October 2001, pp.1324-1328.
54. Hanz Richter, Enrique Barbieri, and Fernando Figueroa, “Modeling, Simulation and Control of a Propellant Mixer”, Proc. of the 39th AIAA/ASME/SAE/ASEE Joint Propulsion Conf., July 2003.
55. Enrique Barbieri, Hanz Richter, and Fernando Figueroa, “Small signal point-to-point tracking of a propellant mixer”, Proceedings of the American Control Conference, June 2003, pp.2845-2850.
56. Hanz Richter, Enrique Barbieri, and Fernando Figueroa, “Nonlinear modeling and control of a propellant mixer”, Proceedings of the American Control Conference, June 2003, pp.2839-2844.
57. S. Motamarri, H. A. Malki, E. Barbieri, and E. J. Charlson, “Exercise Machine Controller Design”, Proceedings of the 14th International Symposium on Measurement and Control in Robotics (ISMCR), September 2004 - NASA Johnson Space Center, Houston, Texas.
58. H. Richter, E. Barbieri, and F. Figueroa, “Modelling and validation of a propellant mixer for controller design”, Journal of Applied Mathematical Modelling, V.29, pp.195-210, 2/05.
59. E. Barbieri, “An n-Step Deadbeat Regulator”, in the Proceedings of the IASTED International Conference on Control and Applications (CA 2005), May 18-20, 2005.

60. S. Muzdeka and E. Barbieri, “Control theory inspired considerations of the mathematical models of defibrillation”, the Joint 44th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC'05) Seville, Spain, December 12-15, 2005, pp. 7416-7421.
61. R. Salinas and E. Barbieri, “Quasioptimal Sliding Mode Controller for a Flexible Structure”, in Proceedings of the 2006 American Control Conference, pp.4718-4723, June 2006.
62. R. Alba-Flores and E. Barbieri, “Vibration Suppression in Flexible Beams under the Steady-State Linear-Quadratic Tracking Framework”, IEEE Int. Conference on Systems, Man, & Cybernetics, Taipei, Taiwan, Oct. 2006, pp.38-43.
63. C-C. Tong and E. Barbieri, “Design of Refined Grey Prediction Controller”, IEEE International Conference on Systems, Man, & Cybernetics, Taipei, Taiwan, Oct. 2006, pp.758-763.
64. E. Barbieri, J. F. Eberth, and F. Attarzadeh, “On Optimal Defibrillating Pulse Synthesis”, Proceedings of the American Control Conference, San Francisco, CA, June 29-July 1, 2011, pp.4781-4786.
65. F. Manzo, V. Tzouanas, and E. Barbieri, “Modeling, Simulation, and Control of Heat Integrated Distillation Columns: A Case Study”, ASEE Annual Conference and Exposition, San Antonio, TX, June 2012
66. S. Yousefi, N. Joshua, H. Bostanci, E. Barbieri, “Automation of a Heat-Shrink Tubing Process”, IAJC/ISAM Joint International Conference, Orlando, FL, September 2014.
67. V. Tzouanas and E. Barbieri, “Constrained PID Design & Implementation: a Co-Simulation Framework”, in Proceedings of the IEEE Conference on Control Technology & Applications, August 2017.
68. E. Barbieri, W. Fitzgibbon, J. Morgan, “New Insights into a Pandemic SIR Model for Control and Public Health Intervention”, 2021 IEEE Conference on Control Technology and Applications (CCTA), to appear.

Educational and Other Publications & Presentations

69. Research reported in book. AK Peters, Ltd. has published the book “Sensors for Mobile Robots”, 1995, by H. R. Everett. The book includes descriptions in three chapters of my collaborative work with Dr. Fernando Figueroa in ultrasonic sensing research and development.
70. E. Barbieri, “Matemática para la Ingeniería de Control”. Mathematics leveling course for engineers of the petrochemical industries. Internal publication by PDVSA (Petroleos de Venezuela)/CIED (Centro Internacional de Educación y Desarrollo), Caracas, Venezuela, May 1999. (In Spanish)
71. E. Barbieri, "Teoría de Control",. Modern control course for engineers of the petrochemical industries. Internal publication by PDVSA (Petróleos de Venezuela)/CIED (Centro Internacional de Educación y Desarrollo), Caracas, Venezuela, 12/1999. (In Spanish)
72. H. Richter, F. Figueroa, E. Barbieri, J. G. Austin, “A Graphical User Interface for Modeling, Simulation, and Design of a Propellant Mixer”, NASA Disclosure of Invention and New Technology (Including Software), (11/05 NASA Tech Briefs).
73. H. Malki, M. Gibson, E. Barbieri, and W. Fitzgibbon, “Towards an interdisciplinary graduate degree in technology”, in Proceedings of the 2006 ASEE Conference.
74. F. Attarzadeh and E. Barbieri, “Training Requirements for the Graduate Assistants in the Capstone Course”, ASEE GSW Annual Conference, UT Pan American, South Padre Island, Texas, 3/2007.
75. F. Attarzadeh, V. J. Gallardo, and E. Barbieri, “Toward Best Laboratory Management Practices”, 2007 ASEE GSW Annual Conference, UT Pan American, South Padre Island, Texas, 3/2007.
76. M. Moges, V. Gallardo, E. Barbieri, A. Boggiano, and C. Ramirez, “Development of Hybrid Orientation Program for Instructional Excellence”, ASEE GSW Annual Conference, UT Pan American, TX, March 2007.
77. V. Gallardo, Mequanint Moges, Enrique Barbieri, Aymara Boggiano, Carlos Ramirez, “Development and Assessment of Online Modules for Hybrid Orientation Programs”, Session 4 Current Issues in Engineering Education, 2008 ASEE-GSW Annual Conference, Albuquerque, New Mexico, March 26-28, 2008.
78. Farrokh Attarzadeh, Enrique Barbieri, Ankur Shukla, Prafulla Kesari, “The Role of the Teaching Assistants in a Senior Level Computer Engineering Technology Capstone Class”, Session 6 Innovative Techniques for Efficient Education, ASEE-GSW Annual Conference, Albuquerque, New Mexico, March 26-28, 2008. Winner of the Second Place, Best Faculty Papers Award.
79. Farrokh Attarzadeh, Enrique Barbieri, Miguel Ramos, “The Evolution of a Senior Capstone Course in the Context of a Research-Based University Quality Enhancement Plan”, 2008 ASEE-GSW Annual Conference, Albuquerque, New Mexico, March 26-28, 2008.

80. Farrokh Attarzadeh, Enrique Barbieri, Miguel A. Ramos, Mayuri Mahajan, Vishal Naik, Aditya Gupta, "How the Capstone Class Students Perceive Their Knowledge Base", Session 15 Curriculum Innovations & Questions, 2008 ASEE-GSW Annual Conf., Albuquerque, New Mexico, March 26-28, 2008.
81. Farrokh Attarzadeh, Miguel A. Ramos, Enrique Barbieri, "Assessing the Assessments in a Senior Computer Engineering Technology Capstone Course", 2008 ASEE-GSW Annual Conference, Albuquerque, New Mexico, March 26-28, 2008.
82. E. Barbieri and W. Fitzgibbon, "Transformational Paradigm for Engineering and Engineering Technology Education", Proc. of the 2008 IAJC-NAIT-IJME International Conference, Nashville, TN, Nov. 2008.
83. Farrokh Attarzadeh, William Fitzgibbon, Enrique Barbieri, and Miguel Ramos, "Situating a Senior Project Course in a University QEP Research-Based Instructional Framework", Proceedings of the 2008 IAJC-NAIT-IJME International Conference, Nashville, TN, Nov. 2008.
84. E. Barbieri, R. Pascali, M. Ramos, W. Fitzgibbon, "A 2-year common template for Mechanical Engineering and Mechanical Engineering Technology", Ac 2009-1955, Proceedings of the ASEE Annual Conference and Exposition, Austin TX, 2009. Best Poster Award by the Mechanical Engineering Division.
85. E. Barbieri, W. Shireen, F. Attarzadeh, M. Ramos, W. Fitzgibbon, "A 2-year common template for Electrical/Computer Engineering and Electrical/Computer Engineering Technology", Ac 2009-1998, Proceedings of the ASEE Annual Conf. and Exposition, Austin TX, 2009, IEEE Division.
86. E. Barbieri, W. Shireen, F. Attarzadeh, R. Pascali, M. Ramos, W. Fitzgibbon, "CDIO-based 2-year common templates for ECE/ECET and for ME/MET", AC 2009-2026, Proc. of the ASEE Annual Conf. and Exposition, Austin TX, 2009, ETD Division. Nominated for Best Paper Award.
87. E. Barbieri and W. Fitzgibbon, "Transformational Paradigm for Engineering and Engineering Technology Education", Technology Interface Journal, V.9, No.2, Sp. 2009
(online http://technologyinterface.nmsu.edu/Spring09/).
88. F. Attarzadeh, W. Fitzgibbon, E. Barbieri, M. Ramos, "Situating a Senior Project Course in a University QEP Research-Based Institutional Framework", International Journal of Engineering Research & Innovation, http://www.ijeri.org/issues/fall2009/fall09.htm, Vol.1, No.2, Fall/Winter 2009, pp.51-56,
89. F. Attarzadeh, E. Barbieri, and M. Ramos, "Enhancing the Undergraduate Research Experience in a Senior Design Context", AC 2010-2185, Proceedings of the ASEE Annual Conf. and Exp., Louisville, KY, 2010.
90. E. Barbieri, F. Attarzadeh, R. Pascali, W. Shireen, and W. Fitzgibbon, "On B.S.E and B.S.ET for the Engineering Profession", Journal of Engineering Technology (Invited), Sp. 2010, pp.42-46.
91. E. Barbieri and M. Ramos, "Perspectives from an E and ET Forum: Examining the Feasibility of Integrating E and ET Education", to appear in the Proceedings of the American Society for Engineering Education Annual Conference and Exposition, Vancouver, Canada, June 2011. Nominated for Best Paper Award.
92. E. Barbieri and V. Tzouanas, "MS in Engineering Technology: Examples from Control Systems", Proceedings of the ASEE Annual Conference and Exposition, San Antonio, TX, June 2012.
93. E. Barbieri, V. Vaidyanathan, and O. Petersen, "On Engineering Technology Education: BS to PhD", Journal of Engineering Technology, Fall 2012, pp.20-28.
94. E. Barbieri, "Answering a Renewed Call for Action in ET", 2014 ASEE Annual Conf. and Exp.
95. E. Barbieri and X. Wu, "Infusing Industry Interests Into an Applied Data Science Program", Proceedings of the 2020 Conference for Industry and Education Collaboration, Orlando, FL, Jan 2020.

Patent

"Position Detecting System and Method", F. Figueroa and E. Barbieri, U.S. No. 5,280,457, 1/94.

Consulting Experience

1. External Review Team, ET Undergraduate Programs, Southeastern Louisiana Univ., Hammond, LA, 6/2008
2. External Review Team, Engineering Technology Graduate Program, Wayne State Univ., Detroit, MI, 3/2008
3. Dickstein Shapiro Morin & Oshinsky LLP; 2001- 2006. Patent case: provided technical and claim interpretation opinions, deposition testimony, courtroom testimony, and prepared infringement reports dealing with microprocessor-based remote control of TV security camera equipment.

4. Sabbatical leave 1998-99: assisted Universidad de Carabobo faculty in the coordination of a master's program in "Industrial Automation" for electrical, mechanical, chemical, and systems engineers of the oil and petrochemical industries in Valencia, Venezuela.
5. Intralox, New Orleans, LA; 5/98. "Advanced conveyor-belt modeling". Mathematical model for control.
6. Technology International Inc., LaPlace, Louisiana; 1994. NSF/SBIR Phase I "Development of a Microprocessor Educational Toolkit".

Teaching

My overriding philosophy is *to create and transmit knowledge for the betterment of society*. This drives everything I do first as a faculty member to engage in service and in scholarly work leading to funding and publications.

My overall educational philosophy follows the Conceive, Design, Implement, Operate (CDIO www.cdio.org) model of engineering that strives to include in courses aspects of conceptualization, design under constraints, real world implementation, and system operation. I am also a strong advocate of revamping the laboratory exposure throughout the undergraduate engineering education, and especially during the freshman and sophomore years to directly impact retention. The critical importance of laboratories in engineering instruction has been reaffirmed over the years by the ASEE in several reports. The administrative challenges to establishing/increasing and then maintaining experiential learning are not trivial and include (i) availability of space in the curricula to add laboratory courses; (ii) funding for lab equipment and maintenance; (iii) space constraints as most lab space may have been converted to graduate research space; and (iv) dedicated faculty for instruction and for preparation of labs that are modern, project-based, inquisitive, and synchronized with the lectures.

My personal educational philosophy centers on offering well-organized, technology-enhanced lectures with meaningful and thought-provoking examples, challenging students to be analytical and resourceful, and doing everything I can to instill a *conscious research* mind. When students internalize the research cycle – ask a question, find what others have done, reformulate the question, offer an analysis route or new technique, and present to peers – then they learn to teach themselves and teach others. Hence, I strive *to ensure that undergraduate students reach a point where they can teach themselves to learn, and that graduate students learn to teach others.*

Although I have experience in teaching a variety of electrical and computer engineering subjects, I am most comfortable with circuits (analog and digital), signals and systems, and especially with courses that deal with the theory of control systems analysis and design, with the implementation of microprocessor-based feedback control algorithms, and with the mathematics of systems-oriented analysis and design. I enjoy the highly interdisciplinary nature of controls and have always benefited from a mixed engineering student audience in my courses. Course evaluations from students have typically been on the positive side with well above average scores in terms of instructor preparedness and overall quality of instruction.

Courses Taught

Tulane University	
Control Area	ELEN346 "Introduction to Control Systems'' – Junior Engineering ELEN642 "Digital Control Systems" - Senior/Graduate ELEN643 "Optimal Control" – Senior/Graduate ELEN645 "Modern Control Systems" – Senior/Graduate ELEN646 "Nonlinear Control" – Senior/Graduate
Signals & Systems Area	ELEN321 "Signals and Systems" – Junior EE and CPE ELEN701 "Systems Theory" – Graduate
Circuits Area	ELEN201 "Circuits I" – Sophomore Engineering ELEN202 "Circuits II" – Sophomore EE and CPE ELEN204 "Laboratory I" – Sophomore EE
Computer Engineering	ELEN441 "Microprocessor Hardware and Software", Senior ELEN627 "Advanced Microprocessors", Senior/Graduate

Senior Design	ELEN 491/492 – Year long design – Senior EE CPEN485/486 – Year long design – Senior CPE
University of Houston	
Signals & Systems Area	ELET 3301 “Linear Systems”
Control Area	ELET 4304 “Control Systems I” ELET 4104 “Control Systems I – Lab”
Graduate	ELET 6100 “Seminar” ELET 6305 “Analytical Methods in ET” ELET 6304 “Applied Digital Control Systems” ELET 6397 “Modern Control Systems Applications”
University of North Texas	
Undergraduate/Graduate	ELET 4720 “Control Systems” MSES 5310 “Industrial Process Controls” MSES 5800 “Modern Control Systems Applications” MSET 5040 “Analytical Methods in ET”

Undergraduate/Graduate Student Mentoring

1. Eric Dunn. Honors Thesis "Derivation, Implementation, Testing, and Control of Constrained and Unconstrained Models for Flexible Slewing Beams", 5/90 BSEE Tulane University.
2. Tammam Dandashi. Honors Thesis "Time-Optimal Control Laws for Second Order Linear Systems", 5/92 BSEE Tulane University.
3. Yardiel Fuentes. MSEE, Tulane University 5/92 "Analysis, Design and Control of the Direct-Drive, Redundant Manipulator".
4. Chia-Chang Tong. MSEE, Tulane University 5/93 "A Flexible Beam Instrumented with an Ultrasonic Ranging System".
5. David Silver. Honors Thesis "Design of an Undergraduate Control Systems Station", 5/94 BSEE Tulane University.
6. Mahdi Issa. Honors Thesis "Computer Implementation of Time-Optimal Control Laws", 5/94 BSEE Tulane University.
7. John David Nolen. Honors Thesis "Thermomechanical Modeling and Control of a Nitinol Helix Spring", 5/95 BSEE Tulane University.
8. Todd Anderson. "Motorcycle Cruise Control", 5/95 BSEE Tulane University
9. Jorge Donato. MSEE, Tulane University 12/95 "Fuzzy Domain Transformation for Analog Fuzzy Controller Implementation".
10. Mahdi Issa. MSEE, Tulane University 12/95 "Optimal P-LEAD and PI-LEAD Controller Design".
11. Chia-Chang Tong. Ph.D, EE Department, Tulane University, 12/95 "Time Optimal Control Theory: A Continuation Approach".
12. Ryan J. Lucas. MSEE, Tulane University 5/96 "Design of Dual Motor Control System for Three-Wheeled Vehicle".
13. David Sheppard. MSEE, Tulane University 5/96 "A Matlab Robotic Toolbox".
14. Kan Xu. MSEE, Tulane University 8/96 "Variable Structure Control of a Long Flexible Arm with Reaction Actuators".
15. Wanda Solano. MSEE, Tulane Univ. 8/96 "Simulated Estimation of Robotic Dynamic Parameters".
16. Brian Buss. “Design of a Control Station using Simulink: Hardware”, BSEE Tulane University 5/97
17. Rodolfo Salinas MSEE, Tulane University 5/97 “Time Optimal and Sliding Mode Control of Flexible Structures”.
18. G. Mc Croskey. “Nonlinear Differential Equations as Analog Circuits”, BSEE Tulane University 5/98
19. Irfan Sayyad. “Simulink Model of TUMA for Application in Welding”, BSEE Tulane University 5/98
20. Claudia Kent. “Infrared Communication of AM/FM Radio”, BSEE Tulane University 5/98
21. Rocio Alba Flores. Ph.D. EECS Department, Tulane University, 12/99 "On Optimal Tracking and Sliding Mode Control with Application to Vibration Quenching”.
22. Rene Salmón. MSEE, Tulane University 5/99 “Modeling and Control of a 2D Heat Transfer Problem”.
23. S. Briscoe. “Camera Motion Sensing using a Tiltmeter”, BSEE Tulane University 5/02
24. C. Dunbar. “Model and Simulation of the MAGLEV”, BSEE Tulane University 5/02
25. Jamie G. Austin. Honors Thesis “Improving the Accuracy of a Fluid Mixer and Providing a Graphical User Interface (GUI) for its Control”, BSEE Tulane University, 5/03

26. Slobodanka Muzdeka. Ph.D. EECS Department, Tulane University, 8/04 "Application of Control Systems in Defibrillation".
27. S. Motamarri. MSEE, Univ. of Houston, ECE Dept. 12/04 "Prototype EVRA Control Design", (Co-Advisor with E. J. Charlson)
28. Cesar Felizzola. MSET, University of Houston, ET Department, December 2011 "Optimal Defibrillating Pulse Synthesis". E. Barbieri and V. Tzouanas, co-advisors.
29. Fabiana Manzo. MSET, University of Houston, December 2011 "Design and Implementation of Effective Control Strategies for Energy Efficient Distillation Processes". E. Barbieri and V. Tzouanas, co-advisors.
30. Shahrock Yousefi. MSET, University of North Texas, May 2014 "Automation of a Heat Shrinking Wire Harness System".
31. Abhinai Kakumani. MSET Project, University of North Texas, May 2015 "Control and Automation of a Linear Actuator System for a Heat Shrink Tubing Process".
32. Murali Shankar. MSET Project, University of North Texas, December 2015, "PLC Implementation of a Heat Shrinking Tubing Process".

Teaching Award

1995-1996 Faculty Award for Excellence in Teaching, Tulane University, Graduate School Student Association.

Professional Society Membership

- Senior Member, Institute of Electrical and Electronic Engineers (IEEE) Control Systems Society.
- Member, American Society for Engineering Education (ASEE)
- Member, American Society of Mechanical Engineers (ASME) Control Systems Division (93-95).
- Member, American Institute of Aeronautics and Astronautics (AIAA), GCD Division (88-91).

Professional Service Activities

- Chair-Elect 2016-18 ASEE Engineering Technology Council. Withdrew to assume a chair position of Information & Logistics Technology at the University of Houston 8/2018.
- External Reviewer, "Engineering Technology Education in the United States", a report of the National Academy of Engineering, Feb 2017, K. Frase, R. M. Latanision, and G. Pearson, Editors.
- Finance Chair 2017 CCTA – Conference on Control Technology and Applications, Hawaii, Aug 2017. General Chair: Steve Yurkovich; Program Co-Chairs: Mark Spong and Mario Rotea
- Session Moderator, "ABET—ETAC Criterion 3 and Program Criteria: How Can We Improve?", ETLI October 2016, Arlington, VA
- Director Undergraduate ET Programs 2015-16, ASEE Engineering Technology Council
- Session Organizer and Moderator Engineering Technology Leadership Institute (ETLI) annual meeting, Arlington, VA, October 2015; Session I: *Pathways for Engineering Technology Graduate Education*
- Quoted in "R-E-S-P-E-C-T Engineering Technology Steps Up to TCB in the Advanced Manufacturing Era", by Mark Matthews, Editor, and Mary Lord, Deputy Editor, ASEE Prism, Summer 2015, pp.24-34.
- "Answering a Renewed Call for Action in ET", presented at the ET Forum, hosted by Texas A&M-Prairie View, January 30, 2015.
- Session Moderator, Engineering Technology Leadership Institute (ETLI) annual meeting, Arlington, VA, October 10, 2014; Session II: *Professional Societies Perspectives on ET Graduates – This session examined the Professional Societies perspective on the Engineering Technology graduates.* Online videos available here http://www.asee.org/conferences-and-events/conferences/etli/2014
- Reviewer, American Society for Engineering Education (ASEE), 2011; American Control Conference 2011; Conference on Decision and Control 2011
- Presenter, "Opportunities at UH", AT&T Hacemos High Tech Day, AT&T Houston, Feb 25, 2010
- Presenter, "K-12 Innovative Programs", Independent Petroleum Association of America (IPAA) Board Meeting, Houston, TX, September 16, 2009.

- Panelist, “On Engineering and Engineering Technology Education”, Dean’s Roundtable, 2008 ET Leadership Institute (ETLI) meeting, Indianapolis, IN. (Joint panel with W. Fitzgibbon)
- Session Organizer: “Leadership in ET Scholarship”, at the 2007 ET Leadership Institute (ETLI) meeting, University of North Carolina – Charlotte, http://www.et.uncc.edu/etli/index.html
- “A Briefing on TMAC: Texas Manufacturing Assistance Center”, meeting of the American Society for Quality (ASQ), Feb 7th, 2006, Houston, Texas.
- Technological Education Initiative (TEI) Panelist www.abet.org/tei.shtml, Blue Ribbon Panel Featuring four institutions that have undergone TC2K evaluation, Washington, DC, Feb. 18, 2006.
- Houston Technology Center Panelist, Educational Seminar Series, “Manufacturing – The Industrialization of Bio and Advanced Materials”, presentation on TMAC, Feb 10, 2006.
- Member International Program Committee, IASTED Int. Conference on Control and Applications, 2006-07
- “Sistemas de Parámetros Distribuidos: Modelos y Control”, Departamento de Ingeniería Electrónica, Universidad del Valle, Cali, Colombia, 7/97.
- Plenary Talk, “Control Optimo Aplicado a Brazos Flexibles”, Seventh International Congress of Electronics and Communications, Universidad de Nuevo León, México, 3/97.
- Plenary Talk, “Control Moderno: ¿Qué es? ¿Qué se necesita para manejarlo?”, Ciclo de Conferencias – Fundametal, Jornadas de Automatización Industrial, Universidad de Carabobo, Valencia, Venezuela, 11/98.
- Presenter, “Control Automático: Una Mirada al Futuro”, Departamento de Ingeniería Electrónica, Universidad Simón Bolivar, Caracas, Venezuela, 7/95.
- Committee Member, Greater Houston Partnership to establish a Houston Manufacturing Association, 2011
- Member, Executive Council, Texas Manufacturing Assistance Center TMAC (2007 - 2010)
- Chair Executive Council, Texas Manufacturing Assistance Center TMAC (2007 - 2009)
- Technological Education Initiative (TEI) Panelist www.abet.org/tei.shtml, Blue Ribbon Panel Featuring four institutions that have undergone TC2K evaluation, Washington, DC, Feb. 18, 2006.
- Co-chaired the Engineering Technology Leadership Institute (ETLI) conference hosted by the College of Technology, University of Houston (Fall 04).
- NSF Panelist, NSF Graduate Research Fellowship Program (2001, 2002, 2004, 2007)
- Publicity Chair, 41st IEEE Conference on Decision and Control (2002).
- Program Co-Chair, 12th Annual Int. Symposium on Intelligent Control, Istanbul, Turkey, (1997)
- Co-Organizer of the workshop “Technology Enhanced Education at Tulane: Present and Future”, Sp. 1997.
- Finance Chair, the combined Conference on Control Applications, Symposium on Computer Aided Control System Design, and International Symposium on Intelligent Control, Dearborn, MI (1996)
- NSF Panelist, Systems Theory, CAREER Program, February 9-10, 1995
- Conference Exhibits Chair, 34th IEEE Conference on Decision and Control (1995).
- Technical Associate Editor of the IEEE Control Systems Magazine, (1/92-12/95).
- Associate Editor for the Annual IEEE Conference on Decision and Control (1993)
- Associate Editor for the Annual American Control Conference (1994).
- Program Committee Member, Annual American Control Conference (1993, 1997, 2011).
- Program Committee Member, 28th IEEE Southeastern Symp. on System Theory, (1996)
- Member Red Ribbon Panel, Conf. on Decision and Control Student Paper Award (1994,1995)
- Reviewed Proposals for: NSF, Engineering Systems Division, 1995; Engineering Foundation ERIG, January 1994; NSF Puerto Rico EPSCoR December 1997.
- Organizer and Chair of the Technical Session "Control of Lightweight Robotic Systems", 1990 American Control Conference, San Diego, CA, May 1990.
- Chair or co-chair of technical sessions: IEEE Southeast Conference (1990); American Control Conference (1993; 2011); Conference on Decision and Control (1994, 1998, 2005); IASTED Control Applications (2005), IEEE Systems, Man & Cybernetics (2006).
- Attended the Tulane's Annual President's Conference on Teaching, 10/93; 1/94.
- Steering Committee Member for the Louisiana LaSPACE NASA-EPSCoR 1993 RFP, 7/93.
- Attended the workshop "Applied Nonlinear Control", American Control Conf., Chicago, IL, 6/92.

- Attended the workshop "Neural Networks for Control Systems", 28th Conference on Decision and Control, Tampa, Florida, December 1989.
- Attended the Workshop: “How Students Learn, How Teachers Teach, and What Goes Wrong with the Process”, by R. E. Felder and R. Brent, Tulane University, 9/2000

University Service (University of Houston)

- Chair, Department of Information & Logistics Technology, College of Technology, 8/2018-12/2020
- Associate Dean for Research and Graduate Studies, College of Technology, 2009-10
- Member, University Research Council (2009-10)
- Chair, Department of Engineering Technology, College of Technology, 2002-09
- Member, University SACS Quality Enhancement Plan Committee (2006 - 07)
- Member, University Promotion & Tenure Committee 2005-06.
- Chair, Information & Logistics Technology Dept. Chair Search Committee 2005-06
- Member, Texas ARP Proposal Review Committee (2005-06)
- Member, University Fee Committee (2005)
- Member, University International Education Fee Scholarship Committee (2003-04)
- Member, University Academic Development Advisory Committee, review FDIP proposals (03-04)

University Service (University of North Texas)

- Chair, Department of Engineering Technology, College of Engineering, 1/2012 – 7/2018
- Member, Assistant Dean for Corporate Outreach Search Committee, 2015
- Member, College of Engineering Futures, 2015
- Member, Associate Dean for Assessment/Accreditation Search Committee 2013-14
- Member, ROP Internal Grant Committee (2012)

University Service (Tulane University)

- Chair Electrical Engineering & Computer Science Department, 7/96 - 6/98.
- Chair, Publicity Committee, Electrical Engineering Department, 1992-93.
- Chair, Graduate Program Committee, Electrical Engineering Dept. 1994-1996.
- Chair, Faculty Search Committee, Electrical Engineering Department, 1994-1995
- Director of the EE Department Graduate Program, 1994-1995
- Member, Graduate Program Committee, EECS Department, 1999-2001.
- Member, Assessment Committee for the EE/CS Merger, 1994-1996
- Member, Honors Program, Engineering, 1988-1990.
- Member, Humanities and Social Studies Electives, Engineering, 1988-1990.
- Member, Undergraduate Curriculum Development, Electrical Engineering Dept., 93-94.
- Member, Robotics and Automation Committee, School of Engineering (95-98)
- Advisor, Senior Students, Electrical Engineering Department, 1988-1996.