

**Curriculum Vitae**  
**WIJESURIYA P. DAYAWANSA**

**Date of Birth** March 27, 1956

**Citizenship** USA

**EDUCATION**

B.Sc. (Electrical Engineering) University of Peradeniya, SRI LANKA	5/74-9/78
M.Sc. (Electrical Engineering) Clarkson University, Potsdam, NY	9/80-9/82
Sc.D. (System Science and Mathematics) Washington University, St. Louis, MO	9/82-8/86

**ACADEMIC APPOINTMENTS**

Assistant Lecturer, University of Peradeniya, SRI LANKA	9/78-9/80
Assistant Professor of Mathematics, Texas Tech University	9/86-9/89
Assistant Professor of Electrical Engineering and Systems Research Center University of Maryland at College Park,	9/89-9/92
Associate Professor of Electrical Engineering and Institute for Systems Research University of Maryland at College Park,	9/92-8/96
Professor of Mathematics & Statistics Texas Tech University	9/96-
Paul Whitfield Horn Professor of Mathematics & Statistics Texas Tech University	10/03-

**HONOR, AWARDS AND PROFESSIONAL ACTIVITY**

**Professional Service, Memberships**

Guest Editor of the Special Issue on *Recent Advances in Switched Systems*, Journal of Control Theory and Applications. (Publication in January 2006).

Editor of the book **New Directions and Applications in Control Theory: Lecture Notes in Control and Information Sciences Vol 321**, Springer-Verlag, 2005.

Vice Chair (Interactive and Special Sessions), American Control Conference, June 2005.

Co-Organizer of the Conference on New Directions in Control and Applications, (Conference in Celebration of the 60th Birthday of Clyde Martin), Texas Tech University, Nov 14,15, 2003.

Organizer of a special invited session at the Fifteenth International Symposium on Mathematical Theory of Networks and Systems, Notre Dame University, August, 2002.

Co-organizer of three invited sessions at the IEEE Conference on Decision and Control, Pheonix, Dec 1999.

Co-Organizer. Texas Systems Day Symposium, Texas Tech University, Nov 1998.

Corresponding Editor. Journal of Mathematical Systems, Estimation and Control (1990 -1998).

Associate Editor. Journal of Control, Optimization and Calculus of Variations. (1995-2001)

Associate Editor. IEEE Transactions on Automatic Control (1993 -1996).

Associate Editor. SIAM Journal on Control and Optimization (1991- 1993).

Representative. SIAM Activity Group on Control and Optimization to SIAM News (1990 - 1992).

Secretary/Treasurer. SIAM Activity Group on Control and Optimization (1990 - 1992).

Member. Program Committee of the Nonlinear Control System Design Symposium, 1995.

Member. Program Committee of the 32nd IEEE Conference on Decision and Control, San Antonio, 1993.

Member. Program Committee of the 29th IEEE Conference on Decision and Control, Hawaii, 1990.

Member, Institute of Electrical and Electronics Engineers

## Honors and Awards

Elected as Paul Whitfield Horn Professor of Mathematics and Statistics, in February 2003 (Effective from 10/01/2004).

1998-1999 Graduate Professor of the Year in the Department of Mathematics - Awarded by Texas Tech University Chapter of the Society of Industrial and Applied Mathematics.

Outstanding Systems Engineering Faculty Award - 94-95 (for contributions to the research and educational programs of the Institute for Systems Research) - Awarded by the Institute for Systems Research, University of Maryland at College Park.

Outstanding Electrical Engineering Professor of the Semester Award - Spring 1995 (for undergraduate education) - Awarded by the College Park Chapter of the Institution of Electrical and Electronic Engineers.

George Corcoran Memorial Award - 1993 (for significant contributions to the Electrical Engineering Education) - Awarded by the Department of Electrical Engineering, University of Maryland at College Park.

Plaque from the College Park Association of Parents - 1993 (for contributions to undergraduate education)

## RESEARCH AND CREATIVE ACTIVITY

### Published Research

#### Papers in Books:

- 1.1 "Some Global Aspects of the Feedback Linearization Problem," W. M. Boothby and W. P. Dayawansa; in **Differential Geometry: The Interface Between Pure and Applied Mathematics**, M. Luksic, C. Martin, W. Shadwick eds., Contemporary Mathematics Vol. 68, American Mathematical Society, 1987, 51-64.
- 1.2 "On the Global Tracking Problem for Nonlinear Systems," G. Knowles , W.P. Dayawansa and C. F. Martin; in **New Trends in Systems Theory**, G. Conte, A. M. Perdon and B. Wyman eds., Progress in Systems and Control Theory, Vol. 7, Birkhauser, 1991, 225-229.
- 1.3 "Two Examples of Stabilizable Second Order Systems," W. P. Dayawansa and C. F. Martin; in **Computation and Control**, K. Bowers and J. Lund eds., Progress in Systems and Control Theory, Vol. 1, Birkhauser, 1989, 53-63.
- 1.4 "Asymptotic Stabilization of Low Dimensional Systems," W. P. Dayawansa and C. F. Martin; in **Non-linear Synthesis**, C. I. Byrnes and A. Kurzhansky eds., Progress in Systems and Control Theory, Vol. 9, Birkhauser, 1991, 53-67.
- 1.5 "Feedback Control of Chaotic Systems," F. Romeiras, C. Grebogi, E. Ott and W. P. Dayawansa; in **Chaotic Dynamics: Theory and Practice**, T. Bountis ed., Plenum, 1992.
- 1.6 "Recent Advances in the Stabilization Problem for Low Dimensional Systems," W. P. Dayawansa; in **Geometry of Nonlinear Feedback and Optimal Control**, W. Respondek, B. Jakubczyk eds., Marcel-Decker 1997.

- 1.7 “A Coordinate-Free Approach to Tracking for Simple Mechanical Systems On Lie Groups,” in **New Directions and Applications in Control Theory: Lecture Notes in Control and Information Sciences Vol. 321**, Wijesuriya P. Dayawansa, Anders Lindquist, Yishao Zhou eds. Springer-Verlag, 2005.

Papers in Archival Journals:

- 2.1 “Generalized Power System Reliability Theory, Part II,” A.K. David and W.P. Dayawansa, *The Transactions of the South African Institute of Electrical Engineers*, Vol. 72, 1981, 301-307.
- 2.2 “Feedback Control of Singular Systems – Proportional and Derivative Feedback of the State,” R. Mukundan and W.P. Dayawansa, *Int. J. of Systems Science*, Vol. 14, 615-32, 1983.
- 2.3 “Global State and Feedback Equivalence of Nonlinear Systems,” W.P. Dayawansa, W.M. Boothby and D.L. Elliott, *Syst. and Contr. Lett.*, Vol. 6, 1985, 229-34.
- 2.4 “A Hybrid Parametrization of the Space of Linear Single Input, Single Output Systems,” B.J. Ghosh and W.P. Dayawansa, *Syst. and Contr. Lett.*, Vol. 8, 1987, 231-239.
- 2.5 “Global  $(f, g)$ -invariance of Nonlinear Systems,” W.P. Dayawansa D. Cheng, T. J. Tarn and W.M. Boothby, *SIAM J. on Contr. and Optimization*, Vol. 26, 1988, 1119-1132.
- 2.6 “Differential Geometric Methods in Hybrid Parametrization Problems,” B.K. Ghosh and W.P. Dayawansa, *SIAM J. on Contr. and Optimization*, Vol. 26, 1988, 1149-1174.
- 2.7 “Observing Linear Dynamics with Polynomial Output Functions,” W.P. Dayawansa and C. F. Martin; *Syst. and Contr. Lett.*, Vol. 9, 1987, 141-148.
- 2.8 “Feedback Transformations on Tori,” W. P. Dayawansa, D. L. Elliott and C. F. Martin, *Mathematical Systems Theory*, Vol. 22, 1989, 213-219.
- 2.9 “Disturbance Decoupling,  $(f, g)$  - invariant and Controllability Subspaces of a Class of Homogeneous Polynomial Systems,” W. P. Dayawansa and C. F. Martin, *SIAM J. on Contr. and Optimization*, Vol. 27, 1989, 108-119.
- 2.10 “Asymptotic Stabilization of Two Dimensional Real-analytic Systems,” W. P. Dayawansa and C. F. Martin, *Syst. and Contr. Lett.*, Vol. 12, 1989, 205-211.
- 2.11 “A State Space Isomorphism Theorem for Minimal Dynamical Systems,” D. Cheng, W. P. Dayawansa and C. F. Martin, *Acta Mathematicae Applicatae Sinica*, Vol. 7, 1991, 34-37.
- 2.12 “Asymptotic Stabilization of a Class of Smooth Two Dimensional Systems,” W. P. Dayawansa, C. F. Martin and G. Knowles, *SIAM J. on Contr. and Optimization*, Vol. 28, No. 6, 1990, 1321-1349.
- 2.13 “Observability of Systems on Lie Groups and Coset Spaces,” D. Cheng, W. P. Dayawansa and C. F. Martin, *SIAM J. on Contr. and Optimization*, Vol 28, 1990, 570-581.
- 2.14 “A Remark on a Theorem of Andreini, Bacciotti and Stefani,” W. P. Dayawansa and C. F. Martin, *Syst. and Contr. Lett.*, Vol. 13, 1989, 363-364.
- 2.15 “Polynomials with Nonnegative Coefficients,” R. W. Barnard, W. Dayawansa, K. Pearce and D. Weinberg; *Proc. of the American Mathematical Society*, Vol 113, 1991, 77-87.
- 2.16 “Stabilization of Globally Noninteractive Nonlinear Systems Via Dynamic State Feedback,” S. Battilotti and W. P. Dayawansa; *Journal of Mathematical Systems, Estimation and Control*, 1994
- 2.17 “Necessary and Sufficient Conditions for Noninteracting Control with Stability for a Class of Nonlinear Systems,” S. Battilotti and W. P. Dayawansa; *Systems and Control Letters*, Vol 17, 1991, 327-338.
- 2.18 “Global Controllability of Reduced Input Nonlinear Systems,” D. Cheng, W. P. Dayawansa and C. F. Martin, *Problems of Control and Information Theory*, Vol. 19, 1990, 289-311.
- 2.19 “On the Existence of Global Tchebychev Nets,” S. Samelson and W. P. Dayawansa; to appear in *Proceedings of the American Mathematical Society*; Vol 347, No 2, Feb 1995, 651-661.
- 2.20 “Controlling Chaotic Dynamical Systems,” F. J. Romeiras, C. Grebogi, E. Ott and W. P. Dayawansa; *Physica: D.*, Vol 58, 1992, 165-192.

- 2.21 "Asymptotic Stabilization of a Generic Class of Three Dimensional Homogeneous Quadratic Systems", W. P. Dayawansa, C. F. Martin and S. Samelson, *Systems and Control Letters*; Vol 25, No 2, Jan 1995, 119-127.
- 2.22 "Counter-examples on Global Stabilization by Dynamic Feedback," F. Mazenc, L. Praly and W. P. Dayawansa, *Systems and Control Letters*. Vol 23, 1994, 119-125. .
- 2.23 "Observing Chaos," P. So, E. Ott, W. P. Dayawansa, *Physics Review Letters A*, Vol 176, July,1993, 421-427.
- 2.24 "A Necessary and Sufficient Condition for the Perspective Observability Problem," W. Dayawansa, B. Ghosh, C. Martin, and A.Wang, *Systems and Control Letters*, Vol 25, 1995, 159-166.
- 2.25 "Nonlinear Controller for an Inverted Pendulum Having Restricted Travel," Q. F. Wei, W. P. Dayawansa and W. S. Levine , *Automatica*; Vol 31, June 1995, 841-850
- 2.26 "Optimal Control of a Rigid Body with Two Oscillators," P. S. Krishnaprasad, R. Yang and W. P. Dayawansa *Fields Institute Communications*, Vol. 7, 1995, 233-260.
- 2.27 "Observing Chaos: Deducing and Tracking the State of a Chaotic System from Limited Observation" P. So, E. Ott, W. P. Dayawansa, *Physical Review E*, 1996.
- 2.28 "Nonsmooth Simultaneous Stabilization of Nonlinear Systems: An Interpolation Method," B. Ho-Mock-Qai and W. P. Dayawansa, *Systems and Control Letters*, Vol 34, 1998, 43-53.
- 2.29 "Simultaneous Stabilization of Nonlinear Systems," B. Ho-Mock Qai and W. P. Dayawansa, *SIAM J. Contr. Optimization*, Vol 37, No6, 1999, 1701-1725, .
- 2.30 "A Converse Lyapunov Theorem for a Class of Dynamical Systems Which Undergo Switching," W. P. Dayawansa and C. F. Martin, *IEEE Trans. Automat. Contr.*, Vol. 44, April 1999, 751-760.
- 2.31 "Theory of Reference Frames and Biological Control", N. Kirupaharan and W. P. Dayawansa, "Mathematical and Computer Modeling", Vol. 33, 2001, 193-198.
- 2.32 "Polynomial Controllers for Linear Systems," R. Barnard, C. F. Martin and W. P. Dayawansa, *Mathematical and Computer Modeling* Vol. 33, 2001, 79-87.
- 2.33 "Smooth Feedback, Global Stabilization and Disturbance Attenuation of Nonlinear Systems with Uncontrollable Linearization," C. Qian, W. Lin and W. P. Dayawansa, *SIAM J. Contr. and Optimization*, Vol. 40, 2001, 191-210.
- 2.34 "Mathematical Control Theory: Deterministic Finite Dimensional Systems [2nd edition] [Book Review]," W. P. Dayawansa, *IEEE Trans. Automat. Contr.* , Vol. 46, April 2001, 673 -675.
- 2.35 "Smooth Feedback, Global Stabilization and Disturbance Attenuation of Nonlinear Systems with Uncontrollable Linearization," C. Qian, W. Lin and W. P. Dayawansa, *SIAM J. Contr. and Optimization*, Vol. 40, 2001, 191-210.
- 2.36 "Loss of Structurally Stable Regulation Implies Loss of Stability," D. H. S Maithripala, Jordan M. Berg and Wijesuriya P. Dayawansa, *IEEE Trans. Automat. Contr.* Vol. 48, 2003, 483-486.
- 2.37 "Intrinsic Observer-Based Control For Simple Mechanical Systems on Lie Groups,"D. H. S Maithripala, W. P. Dayawansa, and Jordan M. Berg, accepted for publication in *SIAM J. Control and Optimization*
- 2.38 "Approximation of a Switched Linear System by a Nonswitched Homogeneous Polynomial System," P. Perera and W. P. Dayawansa, submitted to *Submitted for Publication in the Journal of Control Theory and Applications*.
- 2.39 "Control of an Electrostatic MEMS Using Static and Dynamic Output Feedback," D. H. S Maithripala, Jordan M. Berg, and W. P. Dayawansa, accepted for publication in the *ASME Journal of Dynamic Systems, Measurement and Control*.
- 2.40 "A General Modeling and Control Framework for Eletrostatically-Actuated Mechanical Systems," D. H. S. Maithripala, B. D. Kawade, J. M. Berg, and W. P. Dayawansa, accepted for publication in the *International Journal of Robust and Nonlinear Control*.
- 2.41 "Almost-Global Tracking of Simple Mechanical Systems on a General Class of Lie Groups,"D. H. S. Maithripala, J. M. Berg, and W. P. Dayawansa, accepted for publication in *IEEE Transactions on Automatic Control*.

- 2.42 "Control Theoretic Smoothing Splines Are Approximate Linear Filters," W. P. Dayawansa, Y. Zhou and C. F. Martin, accepted for publication in *Communications in Information Sciences*.
- 2.43 "Geometry and Control of Human Eye Movements," A. D. Polpitiya, W. P. Dayawansa, C. F. Martin, and B. K. Ghosh. submitted to the *IEEE Transactions on Automatic Control*.

*Papers in Refereed Conference Proceedings :*

- 3.1 "Interconnected Power System Reliability Evaluation with Load Correlation and Transmission Constraints," A.K. David and W.P. Dayawansa, *Proc. of the Second IFAC Symposium on Automatic Control in Power Generation, Distribution and Protection*, Pretoria, South Africa, September 1980.
- 3.2 "Global Linearization by Feedback and State Transformation," W.P. Dayawansa, W.M. Boothby and D.L. Elliott, *Proc. of the 24th IEEE Conf. on Decision and Control*, IEEE, New York, December 1985, 1042-49.
- 3.3 "On the Global  $(f, g)$ -invariance of a Class of Nonlinear Systems," W.P. Dayawansa, D. Cheng, T. J. Tarn and W.M. Boothby, *Proc. of the 25th IEEE Conf. on Decision and Control*, IEEE, New York, December 1986, 2065-2069.
- 3.4 "Identification of Linear Systems via Prony's Method," G. Ammar, D. Cheng, W.P. Dayawansa and C. F. Martin, *Proc. of the 1989 Conf. on the Mathematical Theory of Networks and Systems*, M. A. Kaashoek, J. H. van Schuppen and A. C. M. Ran eds., Birkhauser, Boston, 1990, 483-489.
- 3.5 "Some Sufficient Conditions for Global Feedback Equivalence of a Nonlinear System to an Invariant System on a Torus," W.P. Dayawansa, C. F. Martin, and D. Elliott, *Proc. of the 1987 Conf. on the Mathematical Theory of Networks and Systems*, C. I. Byrnes, C. F. Martin and R. E. Saeks eds., North-Holland, New York, 1988, 399-403.
- 3.6 "Decoupling and Disturbance Decoupling of a Class of Homogeneous Polynomial Systems: A Subspace Approach," W. P. Dayawansa and C. F. Martin, *Proc. of the 26th IEEE Conf. on Decision and Control*, IEEE, New York, December 1987, 509-513.
- 3.7 "Observing Linear Dynamics with Polynomial Output Functions," W. P. Dayawansa and C. F. Martin, *Proc. of the 26th IEEE Conf. on Decision and Control*, IEEE, New York, December 1987, 977-979.
- 3.8 "On the Topology and Geometry Aspects of Universally Observable Systems," C. I. Byrnes, W. P. Dayawansa and C. F. Martin, *Proc. of the 26th IEEE Conf. on Decision and Control*, IEEE, New York, December 1987, 963-966.
- 3.9 "Global Heyman's Lemma for Nonlinear Systems," D. Cheng, W. P. Dayawansa and C. F. Martin, *Proc. of the 27th IEEE Conf. on Decision and Control*, IEEE, New York, December 1988, 58-63.
- 3.10 "Asymptotic Stabilization of Two Dimensional Polynomial Systems," D. Cheng, W. P. Dayawansa and C. F. Martin, *Proc. of the IFAC Symposium on Nonlinear Control Design*, Capri, Italy; Pergamon Press, New York, June, 1989, 185-188.
- 3.11 "Asymptotic Stability of Nonlinear Systems with Holomorphic Structure," W. P. Dayawansa and C. F. Martin, *Proc. of the 28th IEEE Conf. on Decision and Control*, IEEE, New York, December 1989, 2252-2254.
- 3.12 "Some Sufficient Conditions for the Asymptotic Stabilizability of Three Dimensional Homogeneous Systems," W. P. Dayawansa and C. F. Martin, *Proc. of the 28th IEEE Conf. on Decision and Control*, IEEE, New York, December 1989, 1366-1370.
- 3.13 "A Global Nonlinear Tracking Problem," W. P. Dayawansa, C. F. Martin and G. Knowles, *Proc. of the 29th IEEE Conf. on Decision and Control*, IEEE, New York, December 1990, 1168-1171.
- 3.14 "On the Existence of Homogeneous Feedback in the Disturbance Decoupling Problem for Homogeneous Polynomial Systems," W. P. Dayawansa, *Proc. of the 1st European Control Conference*, Hermes, Paris, 1991, 2054-2058.
- 3.15 "Necessary and Sufficient Conditions for Noninteracting Control with Stability for a Class of Nonlinear Systems," S. Battilotti and W. P. Dayawansa, *Proc. of the 1991 American Control Conference*, American Automatic Control Council, Evanston, IL, 1991, 1107-1112.
- 3.16 "Controlling Chaotic Dynamical Systems," F. J. Romeiras, E. Ott, C. Grebogi, and W. P. Dayawansa, *Proc. of the 1991 American Control Conference*, American Automatic Control Council, Evanston, IL, 1991, 1112 -1120.

- 3.17 "Mechanical Systems with Partial Damping," L. S. Wang, P. S. Krishnaprasad and W. P. Dayawansa, *Proc. of the 30th IEEE Conf. on Decision and Control*, Brighton, UK, 1991, 2356-2360.
- 3.18 "Stabilization of Globally Noninteractive Nonlinear Systems via Dynamic State Feedback," S. Battilotti and W. P. Dayawansa, *Proc. of the 30th IEEE Conf. on Decision and Control*, Brighton, UK, 1991, 52-57.
- 3.19 "Control Problems on Principal Bundles and Nonholonomic Mechanics," P. S. Krishnaprasad, R. Yang, and W. P. Dayawansa, *Proc. of the 30th IEEE Conf. on Decision and Control*, Brighton, UK, 1991, 1133-1138.
- 3.20 "Recent Advances in the Stabilization Problem for Low Dimensional Systems," W. P. Dayawansa, *Proc of the IFAC conference on Nonlinear Control Systems Synthesis (Plenary Lecture)*, Bordeaux, France, June 1992.
- 3.21 "Asymptotic Stabilization of Three Dimensional Homogeneous Systems," W. P. Dayawansa, C. F. Martin and S. Samelson, *Proc. of the 31st IEEE Conf. on Decision and Control*, Tucson, Az, Dec 1992.
- 3.22 "Analysis of a Nonlinear Dynamic Inverse Control Strategy and Its Digital Implementation," J. Reilly, W. P. Dayawansa, W. S. Levine, C. Huang and G. Knowles, *Proc. of the 31st IEEE Conf. on Decision and Control*, Tucson, Az, Dec 1992.
- 3.23 "Wavelet Based Identification of a Flexible Structure with Surface Mounted Smart Actuators and Sensors," R. Rezaifar, Y. C. Pati, P. S. Krishnaprasad and W. P. Dayawansa, *32nd IEEE Conf. on Decision and Control*, San Antonio, Tx, Dec 1993, 486-492.
- 3.24 "Modelling of Impact on a Flexible Beam," Q.F. Wei, P. S. Krishnaprasad and W. P. Dayawansa, *32nd IEEE Conf. on Decision and Control*, San Antonio, Tx, Dec 1993, 1377-1383.
- 3.25 "Wavelet Decompositions and Control of the ATB1000 Fixture," R. Rezaifar, W. P. Dayawansa and P. S. Krishnaprasad; presented at the *American Control Conference*, San Fransisco, June 1993.
- 3.26 "A Fast Recursive Algorithm for System Identification and Model Reduction Using Rational Wavelets," Y. C. Pati and R. Rezaifar, W. P. Dayawansa and P. S. Krishnaprasad, *Proceedings 27th Annual Asilomar Conference on Signals Systems and Computers*, Pacific Grove, CA, Nov 1993, 35-39.
- 3.27 "Chaplygin Dynamics and Lagrangian Reduction," R. Yang, P. S. Krishnaprasad and W. P. Dayawansa, *Proceedings of the 2nd International Conference on nonlinear Mechanics*, Beijing, China, August, 1993, 745-749.
- 3.28 "Approximation of Dynamical Effects Due to Impact on Flexible Bodies," Q. Wei, W. P. Dayawansa and P. S. Krishnaprasad; *Proceedings of the American Control Conference*, Baltimore, June 1994, 1841-1845.
- 3.29 "Optimal  $H_\infty$  Control For Impulsive Disturbances," Q. F. Wei, W. P. Dayawansa and P. S. Krishnaprasad; *Proceedings of the 1994 Conference on Information Sciences and Systems*, Princeton, March 1994.
- 3.30 "Computer Modeling and Control System Design for a Mobile Robot," N. Subramaniam and W. P. Dayawansa; *Proceedings of the IFAC NOLCOS Conference*, June 1995.
- 3.31 "Design and Control of a Walking Machine," S. Azarm, W. P. Dayawansa, N. Farvardin, A. Tits, L-W. Tsai; *Proceedings of the American Control Conference, Proceedings of the 1995 American Control Conference*, Seattle, June 1995, 1082-1086.
- 3.32 " $H_\infty$  Control For Impulsive Disturbances: A State-Space Solution," Q. F. Wei, W. P. Dayawansa and P. S. Krishnaprasad; *Proceedings of the American Control Conference*, Seattle, June 1995, 4379-4383.
- 3.33 "Identification for Intelligent Control of 2D Smart Composites," T. Kugarajah, P. S. Krishnaprasad and W. P. Dayawansa; *Proceedings of the SPIE Conference on Mathematics and Control in Smart Structures*, San Diego, March 1995, Paper number 26.
- 3.34 "Smart Motor Concept Based on Piezoelectric-Magnetostrictive Resonance," R. Venkataraman, J. Loncaric, W. P. Dayawansa, and P. S. Krishnaprasad, *Proceedings of the SPIE + Conference on Mathematics and Control in Smart Structures*, San Diego, March 1995, Paper number 83.
- 3.35 "Observability of the Riccati Equation," W. P. Dayawansa, C. F. Martin,; *proceedings of the 34th IEEE Conference on Decision and Control*, New Orleans, December 1995, 317-321.

- 3.36 "Simultaneous stabilization of countable families of nonlinear systems by means of continuous feedback," B. Ho-Mock-Qai and W. P. Dayawansa; Proceedings of the *IEEE Conference on Decision and Control*, December 1996, 29-34.
- 3.37 "Nonsmooth Robust Stabilization of a class of uncertain nonlinear systems in the plane," B. Ho-Mock-Qai and W. P. Dayawansa; Proceedings of the *IEEE Conference on Decision and Control*, December 1996, 2630-2635.
- 3.38 "On the existence of a Lyapunov function for a family of switching systems," C. F. Martin and W. P. Dayawansa; Proceedings of the *IEEE Conference on Decision and Control*, December 1996, 1820-1823.
- 3.39 "Sufficient Conditions for the Simultaneous Stabilizability of Nonlinear Systems," B. Ho-Mock-Qai and W. P. Dayawansa, Proceedings of the *American Control Conference*, 1997, 3945 -3949.
- 3.40 "Simultaneous Stabilization of Two Planar Nonlinear Systems Arising From Bifurcation Problems," C. F. Martin and W. P. Dayawansa; Proceedings of the *IEEE Conference on Decision and Control*, December 1997, 2650 -2653.
- 3.41 "Reference Frames in Learning and Control," N. Kirupaharan and W. P. Dayawansa, Proceedings of the *IFAC world congress*, Beijing, July 1999.
- 3.42 "Topological Obstructions to Simultaneous Stabilization," W. P. Dayawansa and B. Ho-Mock-Qai, Proceedings of the *IEEE Conference on Decision and Control*, Phoenix, December 1999, 1196-1201.
- 3.43 "Van der Pol Oscillator Networks," Proceedings of the *IEEE Conference on Decision and Control*, N. Wang and W. P. Dayawansa, December 1999, 393-398.
- 3.44 "On Global Lyapunov Functions of Nonlinear Autonomous Systems," A. Wang and W. P. Dayawansa, Proceedings of the *IEEE Conference on Decision and Control*, Phoenix, December 1999, 1635-1639.
- 3.45 "Some Nonlinear Control Problems in Biology," W. P. Dayawansa, Proceedings of the *3rd Asian Control Conference*, Shanghai, China, July 2000.
- 3.46 "Convergence of Extended Kalman Filtering to Locate a Moving Target in Wildlife Telemetry," M. S. Sugathadas, C. F. Martin and W. P. Dayawansa, Proceedings of the *IEEE Conference on Decision and Control*, Sydney, December 2000, 2096-2099.
- 3.47 "Phase Locking in the Mammalian Circadian Clock," J. Miller, W. P. Dayawansa, P. Hallgren and C. F. Martin, Proceedings of the *IEEE Conference on Decision and Control*, Sydney, December 2000, 1643 -1648.
- 3.48 "Control of Pursuit Eye Movement," M. S. Sugathadas, W. P. Dayawansa and C. F. Martin, Proceedings of the *IEEE Conference on Decision and Control*, Sydney, December 2000, 1793 -1798.
- 3.49 "Stability of Phase Locked Oscillations in the Circadian Clock," W. P. Dayawansa, C. F. Martin, Proceedings of the *American Control Conference*, June 2001, 252 -256.
- 3.50 "Van der Pol Networks with Symmetry," W. P. Dayawansa and C. F. Martin, Proceedings of the *IEEE Conference on Decision and Control*, Orlando, December 2001, 423-424.
- 3.51 "Virtual Control Systems Laboratory," C. Navaratna, W. P. Dayawansa and C. F. Martin, Proceedings of the *IEEE Conference on Decision and Control*, Orlando, December 2001, 2839-2843.
- 3.52 "Boundedness of Covariance Estimates of Extended Kalman Filtering with Directional Measurements and Linear Dynamics," M. S. Sugathadas, W. P. dayawansa and C. F. Martin, Proceedings of the *IEEE Conference on Decision and Control*, Orlando, December 2001, 3790-3795.
- 3.53 "Loss of Structurally Stable Regulation Implies Loss of Stability," D. H. S. Maithripala, J. M. Berg and W. P. Dayawansa, Proceedings of the *American Control Conference*, Anchorage, May 2002, 2737-2740.
- 3.54 "The Existence and Codimension of Parameter-Space Submanifolds Limiting Simultaneous Regulation," D. H. S. Maithripala, J. M. Berg and W. P. Dayawansa, Proceedings of the *American Control Conference*, Anchorage, May 2002, 4415-4420.
- 3.55 "Capacitive Stabilization of an Electrostatic Actuator: An Output Feedback Viewpoint," D. H. S. Maithripala, J. M. Berg and W. P. Dayawansa, Proceedings of the *American Control Conference*, Denver, May 2003, 4053-4058.

- 3.56 "Nonlinear Dynamic Output Feedback Stabilization of Electrostatically Actuated MEMS," D. H. S. Maithripala, J. M. Berg and W. P. Dayawansa, Proceedings of the *IEEE Conference on Decision and Control*, Maui, December 2003, 61-66.
- 3.57 "Nanoprecision Control of Micromirrors Using Output Feedback," D. H. S. Maithripala, R. Gale, M. Holtz, J. M. Berg and W. P. Dayawansa, Proceedings of the *IEEE Conference on Decision and Control*, Maui, December 2003, 2652-2657.
- 3.58 "A Virtual Velocity Sensor for Improved Transient Performance of Electrostatically-Actuated MEMS," D. H. S. Maithripala, J. M. Berg and W. P. Dayawansa, Proceedings of the 2003 ASME International Mechanical Engineering Congress and R&D Expo, November 2003, Paper Number IMECE2003-42451.
- 3.59 "A Port-Controlled Hamiltonian Approach to Control of an Electrostatic MEMS Actuator," D. H. S. Maithripala, J. M. Berg and W. P. Dayawansa, Proceedings of the 2003 ASME International Mechanical Engineering Congress and R&D Expo, November 2003, Paper Number IMECE2003-42461.
- 3.60 "Non-linear Approximation Filtering in Estimating the Origin of Contaminant Particles in a Fluid Flow Using Fixed Sensors," Channa Navaratna and W. P. Dayawansa, Proceedings of the American Control Conference, 2004, Boston, June 2004.
- 3.61 "Asymptotic Feedback Controllability of Switched Control Systems to the Origin," P. Perera and W. P. Dayawansa, Proceedings of the *American Control Conference, 2004*, Boston, June 2004.
- 3.62 "Mechanics of the Eye Movement: Geometry of the Listing Space," A. Polpitiya, B. K. Ghosh, C. F. Martin, and W. P. Dayawansa, Proceedings of the *American Control Conference, 2004*, Boston, June 2004.
- 3.63 "Intrinsic Observer Based Control for Simple Mechanical Systems on Lie Groups," S. Maithripala, J. Berg and W. P. Dayawansa, Proceedings of the *American Control Conference, 2004*, Boston, June 2004.
- 3.64 "Extreme Value Statistics and the Lorenz Attractor," S. Sugathadasa, D. Smith, K. C. Mehta and W. P. Dayawansa, Proceedings of the *24th Chinese Control Conference*, pp1522-1525, July, 2004.
- 3.65 "Influence of Long Distance Connections on the Synchronization of Oscillator Networks," W. P. Dayawansa, and M. Navaratna, Proceedings of the Workshop on Human Adaptive Mechatronics at the Center of Excellence at the Tokyo Denki University, Tokyo, March 2004.
- 3.66 "Control of Travelling Pulses in Mems Arrays: Numerical Evidence of Practical Asymptotic Stabilization," R. Palamakumbura, S. Maithripala, W. P. Dayawansa, and H. Inaba, Proceedings of the *American Control Conference, 2005*, Portland, June 2005.
- 3.67 "Modelling Transient Dynamics in a Small World Network of Oscillators," J. D. Miller, M. Navaratna and W. P. Dayawansa, To Appear in the Proceedings of the *IEEE Conference on Decision and Control, 2004*, Nassau, Bahamas, December 2004.
- 3.68 "Integrated Sensing for Passivity-Based Nonlinear Feedback Control of Electrostatic Mems," M. Goyal, B. Kawade, K. Ragulan, D. H. S. Maithripala, L. Tian, J. M. Berg, R. C. Anderson, R. O. Gale, W. P. Dayawansa, M. Holtz, H. Temkin, to appear in the Proceedings of the 2005 ASME International Mechanical Engineering Congress and Exposition, Nov 5-11, Orlando, 2005.
- 3.69 "State and Configuration Feedback for Almost Global Tracking of Simple Mechanical Systems on a General Class of Lie Groups," , D. H. S. Maithripala, J. M. Berg, and W. P. Dayawansa, Proceedings of the *American Control Conference, 2005*, Portland, June 2005.

Other Papers :

- 4.1 "Stability of Randomly Switched Systems," W. P. Dayawansa and C. F. Martin; presented at the *Mathematical Theory of Networks and Systems Conference*, St. Louis, June 1996.
- 4.2 "Modelling and Control of Shape Change," A. Girard and W. P. Dayawansa; presented at the *Mathematical Theory of Networks and Systems Conference*, St. Louis, June 1996.
- 4.3 "Nonsmooth Robust Stabilization of a Family of Linear Systems in the Plane," B. Ho-Mock-Qai and W. P. Dayawansa; presented at the *Mathematical Theory of Networks and Systems Conference*, St. Louis, June 1996.

- 4.4 “On the Geometry of the Simultaneous Stabilization Problem,” Presented at the AMS Summer Research Institute on Differential Geometry and Feedback Control, Boulder, Colorado, July 1997.
- 4.5 “Stability Across a Bifurcation Point,” Presented at the Texas Systems Day, Rice University, Houston, October, 1997.
- 4.6 “Mathematical Modeling of the Mammalian Circadian Rhythm,” Presented at the Summer Conference on Nonlinear Control, Tsinghua University, July 2000.
- 4.7 “Bifurcation Theory and Mammalian Circadian Clock,” Presented at the Department of Systems Science and Mathematics, Washington University, St. Louis, September 11, 2001.
- 4.8 “Neural Inputs for Smooth Pursuit Eye Movement,” M. S. Sugathadasa, W. P. Dayawansa and C. F. Martin, Presented at the 40th IEEE CDC Conference, Orlando, December 2001.
- 4.9 “Pursuit Eye Movement from the Viewpoint of Nonlinear Control Theory,” Clyde Martin, Lawrence Schovanec, Wijesuriya Dayawansa, and M. S. Sugathadasa, Presented at the 5th SIAM Conference on Control and its Applications, San Diego, July 11-14, 2001.
- 4.10 “Pattern Generation Circuitry,” presented at the Department of Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, March 2002.
- 4.11 One of four panellists at the symposium of the Role of Universities in the 21st Century, Hong Kong Polytechnic University, Hong Kong, March 2002.
- 4.12 “Large Amplitude Travelling Waves in Coupled Oscillator Networks,” Fifteenth International Symposium on Mathematical Theory of Networks and Systems, Notre Dame University, August, 2002.
- 4.13 “On the Stabilization of Controllable Switching Systems,” The Fourth International Conference on Dynamical Systems and Differential Equations, University of North Carolina, Wilmington, May 2002.
- 4.14 “Control of Micromirror Arrays,” Special Semester in Control Theory at the Mittag-Leffler Institute, Stockholm, Sweden, March 2003.

*Citations to Selected Papers in Archival Journals (From the ISI Web of Knowledge):*

Number of Times Cited	Journal in Which Article Appeared	Year	Volume	Starting Page
33	INT J SYST SCI	1983	14	615
20	SYST CONTROL LETT	1985	6	229
17	AUTOMATICA	1995	31	841
41	IEEE T AUTOMAT CONTR	1999	44	751
19	PROC IFAC S NONL CONT	1992	1	
13	PHYS LETT A	1993	176	421
15	PHYS REV E	1994	49	2650
251	PHYSICA D	1992	58	165
52	SIAM J CONTROL OPTIM	1990	28	1321
45	SYST CONTROL LETT	1994	23	119
29	SYST CONTROL LETT	1989	12	205

### Invention Disclosures

- 5.1 “Hybrid Motor,” University of Maryland Invention Disclosure, PS-96-048 (with J. Loncaric, P. S. Krishnaprasad and R. Venkataraman), 1996.

### Funding

1. PI - National Science Foundation - ECS 8802483. “Geometric Methods in Feedback Control and Parameterization Problems.” Aug 31, 1988 till January 31, 1992 to the Total Amount of \$100,236
2. Researcher – US Army Research Office for the University Research Initiative Program. “Smart Structures Technology: Innovations and Applications to the Rotorcraft Systems.” May 1, 1992 till April 30, 1997 to the Total Amount is \$ 2,300,000

3. PI - National Science Foundation - ECS 9109344. "Design and Control of a Walking Robot." July 1, 1992 till June 31, 1996 to the Total Amount of \$ 389,999.
4. Researcher – Office of Naval Research. "Control of Chaotic Motion is Cargo Transfer at Sea." January 15, 95 till January 15, 1996 to the Total Amount of \$139,495.
5. Researcher – National Science Foundation. "Sensor Integration and Control of Semiconductor Manufacturing Processes." October 1, 1995 till September 31, 1998 to the total amount of \$ 550,000.
6. PI – National Science Foundation - ECS 9707927. "A Class of Robust Stabilization Problems in Nonlinear Control." September 1, 1997 till December 31, 2001 to the Total Amount of \$ 179,399.
7. Co-PI – National Science Foundation - ECS 9720357. "Learning and Intelligent Systems." September 1, 1997 till December 31, 2001 to the Total Amount of \$ 720,000.
8. NATO Scientific and Environmental Affairs Division. "Simultaneous Stabilization of Nonlinear Systems." September 1, 1998 till September 1, 1999 to the Total Amount of BF 216,000 (approximately \$6000).
9. PI – Texas Higher Education Coordinating Board ARP Grant. "Modeling the Human Muscular Control System." January 2000-October 2002 to the Total Amount of \$70,203.
10. Co-PI (out of 2)– US Army SBCCOM. "Systems Approach to Modeling and Simulation of Dispersal of Chemical and Biological Agents." September 25, 2000 till January 31, 2002 to the Total Amount of \$272,328.
11. Co-PI (out of 5)– Environmental Protection Agency. "Interactions Among Climate, Humans and Playa Wetlands On the Southern High Plains." 10/30/01-10/29/04 (extended until 10/29/06) for the Total Amount of \$900,000.
12. Co-PI (out of 4) – National Science Foundation. "GOALI: Nonlinear Control of an Electrostatically-Actuated Spatial Light Modulator." 10/01/2002 - 9/30/2005 (extended until 9/30/2006) for the Total Amount of \$575,000.
13. PI – National Science Foundation. "Control of Patterns in Systems with Large Numbers of Actuators and Sensors." 10/01/2002 - 9/30/2005 (extended until 9/30/2006) for the Total Amount of \$126,985.
14. Co-PI (out of 2) – National Science Foundation. "Pattern Generating Circuits for Computation and Control." 10/01/05-9/30/08 for the Total Amount of \$400,000.
15. PI – National Science Foundation. "Control of Systems with Large numbers of Actuators and Sensors." 10/01/05-9/30/08 for the Total Amount of \$240,000.

### **Students Graduated**

1. Chang Lin-Huang, M. Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409. May 1989
2. Ramin Rezaiifar, M. Sc. in Electrical Engineering, University of Maryland, College Park, Md 20742. August 1993.
3. Narayanan Subramaniam, M. Sc. in Electrical Engineering, University of Maryland, College Park, Md 20742. May 1994.
4. George Kantor, M. Sc. in Electrical Engineering, University of Maryland, College Park, Md 20742. August 1995.
5. T. Kugaraja, M. Sc. in Electrical Engineering, University of Maryland, College Park, Md 20742. August 1995.
6. Qifeng Wei, Ph. D. in Electrical Engineering, University of Maryland, College Park, Md 20742. May, 1995.
7. Scott James, Ph. D. in Applied Mathematics, University of Maryland, College Park, Md 20742. May 1996.
8. Bertina Ho-Mock-Qai, Ph. D. in Electrical Engineering, University of Maryland, College Park, MD 20742. September 1996.
9. Andy Girard, Ph. D. in Applied Mathematics, University of Maryland, College Park, MD 20742. Date: May 1997.

10. James Conn, M. Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409. December 1998.
11. N. Kirupaharan, M. Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409. August 1999.
12. N. Wang, M. Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409. August 1999.
13. C. Navaratna, M. Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409. May 2001.
14. P. Perera, M. Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409. August 2001.
15. S. Maithripala, M. Sc. in Mechanical Engineering (co-supervised), Texas Tech University, Lubbock, TX 79409. December 2001.
16. N. Wijeratna, M.Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409, August 2003.
17. D. Randeniya, M.Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409, December 2003.
18. M. Navaratna, M.Sc. in Mathematics, Texas Tech University, Lubbock, TX 79409, December 2003.
19. P. Perera, Ph.D. in Mathematics, Texas Tech University, Lubbock, TX 79409, December 2003.
20. C. Navaratna, Ph.D. in Mathematics, Texas Tech University, Lubbock, TX 79409, December 2003.
21. S. Maithripala, Ph.D. in Mechanical Engineering(co-supervised with J. Berg), Texas Tech University, Lubbock, TX 79409, December 2003.
22. A. Polpitiya, Sc.D. in Electrical Engineering Systems (co-supervised with B. Ghosh), Washington University, St. Louis, MO 63130, December 2003.