VITAE - Weldon A. Lodwick

Born: São Paulo, SP, Brasil – January 26, 1944

EDUCATION

Institution	Date	Degree	Major
Muskingum College	1963-1967	B.S.	Mathematics
University of Cincinnati	1967-1969	M.A.	Mathematics
Oregon State University	1973-1977	Ph.D. (1980)	Mathematics

Thesis title: "Two Numerical Methods for the Solution of Optimal Control Problems With Computed Error Bounds Using the Maximum Principle of Pontryagin"
Supervisor: Dr. Joel Davis

PROFESSIONAL EXPERIENCE (last 30 years)

2002 – present	Full Professor of Mathematics, University of Colorado Denver
1989 – 2002	Associate Professor of Mathematics, University of Colorado Denver
1982 - 1989	Assistant Professor of Mathematics, University of Colorado Denver
1991 - 1993	Visiting Associate Professor, Systems Analysis, Miami University, Oxford, Ohio
1977 - 1982	Research Assistant and Assistant Professor, Department of Resource Development and co-director of the MSU/CRIES international project in Central America, Caribbean, and Syria, Michigan State University and Organization of American States

AWARDS, HONORS, and SIGNIFICANT POSITIONS

2009 – Director of the Center for Computational and Mathematical Biology

2008-2009 University of Colorado Faculty Council University Distinguished Service Award

2008 – Visiting Professor (one month), Paul Sabatier University, Toulouse, France

2007 – present Area Editor (fuzzy interval analysis and fuzzy differential equations) *Fuzzy Sets and System*

2005 – 2010 Chair of Faculty Senate Privilege and Tenure Committee, University Colorado System-wide Grievance and Dismissal Committee (three universities and four campuses)

2003 – present Board of Editors for *Fuzzy Sets and System* and
Chair of Optimization Under Uncertainty Special Interest Group of IFSA

2001 – present Secretary and Director (publicly elected) of South Englewood
Sanitation District No. 1

2000 – Fulbright Research Fellowship (University of Coimbra, Portugal)

1994 – 1995 Outstanding Faculty – granted by students of the College of Engineering of the University of Colorado at Denver for teaching

1972 – Star Teacher, Burke County, Georgia

PUBLICATIONS - refereed

2009

Lodwick, W., "The relation between interval, fuzzy, and possibilistic optimization," Modeling Decisions for Artificial Intelligence Conference Proceedings, November 30 – December 2, 2009, Awaji Island, Japan.

Lodwick, W. and Untiedt, E., "Fuzzy optimization," in Meyers, R.A. (editor) **Encyclopedia of Complexity and Systems Science**, Soft Computing Section editor Janusz Kacprzyk, Springer Verlag, 2009.

Thipwiwatpotjana, Y. and Lodwick, W., "The use of interval-valued probability measures in fuzzy linear programming: A constraint set approach," IFSA-EUSFLAT 2009, Proceedings, Lisbon, Portugal, July 20-24, 2009.

2008

Lodwick, W. and Jamison, D., "Interval-Valued Probability in the Analysis of Problems Containing a Mixture of Possibilistic, Probabilistic, and Interval Uncertainty," *Fuzzy Sets and Systems,* **159**:1, 1 November 2008, pp.2845-2858

Lodwick, W., "Fundamentals of interval analysis and linkages to fuzzy set theory," in **Handbook of Granular Computing**, Withold Pedrycz, Andrzej Skowron, and Vladik Kreinovich, John Wiley, Publishers, West Sussex, England, 2008, pp. 55-79.

Lodwick, W. (editor and contributor). **Fuzzy Surfaces in Geographical Information Systems**. CRC Publishers, 2008.

2007

Lodwick, W. and Jamison, K.D., "The Use of Interval-Valued Probability Measure in Optimization Under Uncertainty for Problems Containing a Mixture of Possibilistic, Probabilistic and Interval Uncertainty," in **Fundamentals of Fuzzy Logic and Soft Computing,** 12th International Fuzzy Systems Association World Congress, IFSA 2007, Cancun, Mexico, June 18-21, 2007 Proceedings, pages 361-370.

Untiedt, E. and Lodwick, W., "On selecting an algorithm for fuzzy optimization," ," in **Fundamentals of Fuzzy Logic and Soft Computing,** 12th International Fuzzy Systems Association World Congress, IFSA 2007, Cancun, Mexico, June 18-21, 2007 Proceedings, pages 371-380.

Lodwick, W. **Interval and Fuzzy Analysis: A Unified Approach.** *Advances in Imaging and Electronic Physics,* **Vol. 148,** pp. 76-192, Elsevier, 2007.

Lodwick, W. and Jamison, K.D., "Theory and semantics for fuzzy and possibilistic optimization," *Fuzzy Sets and Systems,* **158**:17, pp. 1861-1871.

2006

Lodwick, W. and Jamison, K.D., "Interval-valued probability in the analysis of problems containing a mixture of fuzzy, possibilisitic and interval uncertainty", *Proceedings NAFIPS'06*, June 3-6, 2005, Montreal, Canada.

2005

Lodwick, W. and Bachman, K., "Solving Large Scale Fuzzy Possibilistic Optimization Problems", *Fuzzy Optimization and Decision Making*, Volume 4, Number 4, pages 257-278, October 2005.

W.A. Lodwick, and K.D. Jamison, "Theory and semantics for fuzzy and possibilistic optimization," *Fuzzy Logic, Soft Computing and Computational Intelligence* (Eleventh International Fuzzy Systems Association World Congress), July 28-31, 2005, Beijing, China, Volume III, pp. 1805-1810.

Fonte, Cidalia and Lodwick, W., "Modeling the fuzzy spatial extent of geographical entities" in Cobb, M., Petry, F., and Robinson, V. (editors), **Fuzzy Modeling with Spatial Information for Geographical Problems**, Springer-Verlag, 2005.

2004

Weldon A. Lodwick, K. David Jamison and Katherine A. Bachman, "Fuzzy and Possibilistic Optimization: Theory, Semantics and Algorithms for Solving Large Problems", *NAFIPS'2004 – Proceedings*, June, 2004.

Fonte, Cidalia and Lodwick, Weldon A., "Areas of Fuzzy Geographical Entities." *International Journal of Geographical Information Systems*, Volume 18 No. 2, March 2004, pp. 127-150.

2003

Lodwick, W.A. and Jamison, K.D., "Estimating and Validating the Cumulative Distribution of a Function of Random Variables: Toward the Development of Distribution Arithmetic," *Reliable Computing*, **9**:2, pp. 127-141.

Moore, R.E., and Lodwick, W.A., "Interval Analysis and Fuzzy Set Theory," *Fuzzy Sets and Systems*, **135**:1, pp. 5-9.

Lodwick, W.A. and Santos, J., "Constructing Consistent Fuzzy Surfaces from Fuzzy Data," *Fuzzy Sets and Systems*, **135**:2, pp. 259-277.

2002

Jamison, K.D., and Lodwick, W.A., "The Construction of Consistent Possibility and Necessity Measures," *Fuzzy Sets and Systems,* **132**:1, pp. 1-10.

Santos, J., Lodwick, W.A. and Neumaier, A., "A New Approach to Incorporate Uncertainty in Terrain Modeling," in **Lecture Notes in Computer Science Vol. 2478** by M. Egenhofer and D. Mark (editors), Springer-Verlag, 2002.

Russell, S., and Lodwick, W.A., "Fuzzy Game Theory and Internet Commerce: e-Strategy and Metarationality," *NAFIPS'2002 – Proceedings*, June, 2002.

2001

Lodwick, W.A., Neumaier, A. and Newman, F. D., "Optimization Under Uncertainty: Methods and Applications in Radiation Therapy," *Proceedings 10th IEEE International Conference on Fuzzy Systems 2001,* Volume 3, pp. 1219-1222.

Lodwick, W.A., Jamison, K. D. and Newman, F. D., "Extension of Interval Validation Methods to Fuzzy Set Theory," *NAFIPS'2001 – Proceedings*, edited by Larry Hall, July, 2001, pp. 1665-1670.

Jamison, K. D., Lodwick, W.A. and Newman, F. D., "Optimization Under Uncertainty Using Possibility and Necessity Distributions Consistent with Probability Distributions," *NAFIPS'2001-Proceedings,* edited by Larry Hall, July, 2001, pp. 1671-1676.

Jamison, K.D. and Lodwick, W.A., "Fuzzy Linear Programming Using Penalty Method," *Fuzzy Sets and Systems,* Vol. 119, 2001, pp. 97-110.

2000

Lodwick, W.A. and.Jamison, K.D. and Russell, D., "A Comparison of Fuzzy, Stochastic and Deterministic Methods in Linear Programming," *19th International Conference of the North American Fuzzy Information Processing Society,* edited by Thomas Whalen, July 2000, pp. 321-325.

1999

Lodwick, W.A. and Russell, D., "The Use of Fuzzy Optimization Methods for Radiation Therapy of Tumors," *18th International Conference of the North American Fuzzy Information Processing Society,* edited by Rajesh N. Dave and Thomas Sudkamp, June 1999, pp.288-293.

Russell, S. and Lodwick, W.A., "Fuzzy Clustering in Data Mining for Telco Database Marketing Campaigns," *18th International Conference of the North American Fuzzy Information Processing Society,* edited by Rajesh N. Dave and Thomas Sudkamp, June 1999, pp. 720-726.

Jamison, K.D. and Lodwick, W.A., "Minimizing Unconstrained Fuzzy Functions," *Fuzzy Sets and Systems,* Vol. 103,No. 3, May 1999, pp. 457-467.

1998

Lodwick, W.A. and Jamison, K.D. " Fuzzy Optimization: Computational Methods and Applications to Radiation Therapy of Tumors," *EUFIT '98*, Vol. 3, Verlag Mainz, 1998, pp. 1888-1898.

Lodwick, W.A., S. McCourt, D. Newman, and S. Humphries, "Optimization Methods for Radiation Therapy Plans," in Borgers, Christof and Natterer, Frank (editors**) IMA Series in Applied Mathematics - Computational Radiology and Imaging: Therapy and Diagnosis***,* Springer-Verlag, 1998.

1997

Lodwick W.A. and Jamison, K.D., "A Computational Method for Fuzzy Optimization," in Ayyub, Bilal and Gupta, Madan (editors), **Uncertainty Analysis in Engineering and Sciences: Fuzzy Logic, Statistics, and Neural Network Approach**, Kluwer Academic Publishers, 1997.

Lodwick, W.A., and Jamison, K.D., "Interval Methods and Fuzzy Optimization," *International Journal of Uncertainty, Fuzziness and Knowledge-Based Reasoning*, Vol. 5, No. 3, June, 1997, pp. 239-250.

1996

Corliss, G. and Lodwick, W.A., "Correct Computation of Solutions of Differential Algebraic Control Equations," *Zeitsschrift fuer Angewandte Mathematik und Machanik (ZAMM)* Special Volume: Numerical, Scientific Computing, Computer Science, 1996, Akademie Verlag, Berlin.

1992

Lodwick, W.A. and Levine, R., Chapter 3: "Sensitivity of Parameter and Loop Structures," pp. 43-86, Chapter 4: "Psychological Scaling and Filtering of Errors in Empirical Systems," pp. 87-118, Chapter 5: "Parameter Estimation and Assessing the Fit of Dynamic Models," pp. 119-150, in **Analysis of Dynamic Psychological Systems: Methods and Applications**, Volume 2, edited by, Ralph Levine and Hiram Fitzgerald, Plenum Press, 1992

Lodwick, W.A. "Preprocessing Nonlinear Functional Constraints with Application to the Pooling Problem," *ORSA Journal on Computing*, Vol. 4 No. 2, May, 1992, pp. 119-131.

1990

Lodwick, W.A., "A Generalized Convex Stochastic Dominance Algorithm," *IMA Journal of Mathematics in Business and Industry,* Vol. 2, No.3, Nov. 1990, pp. 225-246.

Lodwick, W., A. "Analysis of Structure in Fuzzy Linear Programs," *Fuzzy Sets and Systems*, Vol. 38, No. 1, October 1990, pp. 15-26.

Lodwick, W.A., W. Munson, and L. Svoboda, "Attribute Error and Sensitivity Analysis of Map Operations in Geographic Information Systems: Suitability Analysis" *The International Journal of Geographic Information Systems,* Vol. 4, No. 4, October 1990, pp. 413-428.

1989

Lodwick, W.A., "Constraint Propagation, Relational Arithmetic in AI Systems and Mathematical Programs," *Annals of OR, Special Issue: Linkages with Artificial Intelligence*, Vol. 21 (1989), pp. 143-148.

Lodwick, W.A., "Developing Confidence Limits on Errors of Suitability Analyses in Geographic Information Systems," in Goodchild, M. and Suchi, G. (eds), **Accuracy of Spatial Databases**, Taylor and D., London, United Kingdom, 1989, pp. 69-78.

1988

Lodwick, W.A., "The Use of Interval Analysis to Uncover Structures of Linear Systems," in Moore, R.E. (ed), **Proceedings of the International Workshop on Reliability and Computing**, Academic Press, 1988, pp. 341-353.

Lodwick, W.A., "Fuzzy Set Theoretic Approaches to Natural Language in Decision Support Systems," in Mitra, G. (ed), **Proceedings of the NATO ASI Conference on Mathematical Models for Decision Support**, Springer Verlag, 1988, pp. 575-584.

1984

Robison, L., Cochran, M. and Lodwick, W.A., "Improving the Efficiency of Stochastic Dominance Techniques using Convex Set Stochastic Dominance," *American Journal of Agricultural Economics,* Vol. 67, No. 2, 1984, pp. 289-295.

MANUSCRIPTS – under review
Jamison K. D. and Lodwick W. A., "Interval-Valued Probability Measures" (*Fuzzy Sets and Systems)*

PUBLICATIONS – un-refereed

Vladik Kreinovich, Daniel J. Berleant, Scott Ferson and Weldon A. Lodwick,
"Combining Interval and Probabilistic Uncertainty: Foundations, Algorithms, Challenges -- An Overview," Proceedings of the International Conference on Fuzzy Systems, Neural Networks, and Genetic Algorithms FNG'05, Tijuana, Mexico, October 13-14, 2005, pp. 1-10.

Jamison K. D. and Lodwick W. A., "Interval-Valued Probability Measures" July, 2004 (submitted)

Jamison, K. D., Lodwick, W.A., and Kawai, M., "A Simple Closed Form estimate of the Cumulative Distribution Function a Monotone Function of a Random Variable," UCD/CCM Report No. 187, May, 2002.

Fonte, C., and Lodwick, W.A., "Modeling and Processing the Positional Uncertainty of Geographical Entities with Fuzzy Sets," UCD/CCM Report No. 176, August, 2001.

Corliss, G. and Lodwick, W.A., "The Role of Constraints in the Validated Solution of DAEs," Marquette University Technical Report No. 430 - March, 1996.

Lodwick, W.A. "Constrained Interval Arithmetic," UCD/CCM Report No. 138, February, 1999.

Lodwick, W.A. "Computing Minimal Admissible Sets in Decision Making Under Risk Using Convex Stochastic Dominance – Parts 1/2," UCD/RP 86-0101 and 86-0102, January 1986.

Lodwick, W.A. "A New Stochastic Dominance Criterion," UCD/RP 85-1201, December 1985.

Lodwick, W.A. "Interval Analysis and Optimal Control: Automatic Computation of Errors for Constrained and Unconstrained Problems," UCD/RP 85-1002, October, 1985.

Lodwick, W.A., "Two Interval Analytic Methods for Solving Unconstrained Optimal Control Problems Using Integral Equations with Automatically Computed Error Bounds," UCD/RP 85-1001, October 1985.

TALKS AT PROFESSIONAL MEETINGS (selected)

2009 – IFSA 2009, "Hybrid neural network and fuzzy/possibilitic optimization methods for improving the efficiency of fuzzy/possibilistic algorithms," Lisbon, Portugal, July 19-23, 2009.

EURO 2009, "An application of neural nets to quick-start fuzzy/possibilistic linear programs in the treatment tumors," Bonn, Germany, July 5-8.

University of South Africa, "Directions in optimization under uncertainty," Department of Operations Research, June 22-July 6, 2008.

NAFIPS 2009, "The use of constraint fuzzy analysis to solve linear algebraic problems," June 14-17, 2009, Cincinnati, Ohio

2008 – IRIT (Toulouse, France), "Fuzzy interval analysis using constraint fuzzy arithmetic and gradual numbers with application to constraint logic programming, constraint propagation with interval labels," May 6, 2008

NAFIPS'08, "Fuzzy interval analysis using constraint fuzzy arithmetic and gradual numbers," Rockefeller University, May 19-22, 2008.

New Trends in Industrial and Applied Mathematics: International Conference in the Memory of Professor A. M. Anile, invited speaker, "Being certain about uncertainty: Some ideas and extensions inspired by the research of Dr. Professor Marcello Anile", November 10-13, University of Catania, Catania, Italy.

University of Innsbruck, Innsbruck Austria, invited speaker, "Analysis of propagation of uncertainty: Recycled and newer methods," November 25, 2008.

2007 – IFSA'07 (Cancun, Mexico), "The Use of Interval-Valued Probability Measure in Optimization Under Uncertainty for Problems Containing a Mixture of Possibilistic, Probabilistic and Interval Uncertainty", June 18-21, 2007

Universidad de Tarapacá, Departamento de Matemática, Arica, Chile, "Interfaces between fuzzy set theory and interval analysis," July 31, August 1,, 2007.

COMCA XVII Congreso de Matemática Capricornio – Universidad de Atacama, Departmento de Matemática, Copiapó de 1 a 4 de Agosto, "A survey of theory, methods, and applications of optimization under fuzzy and possibilitistic uncertainty," Special Section on Teoria Fuzzy.

2006 – NAFIPS'06 (Montreal, Canada), "Interval-valued probability in the analysis of problems containing a mixture of fuzzy, possibilisitic and interval uncertainty"

2005 – IFSA'05, July 28-31, 2005, Beijing, China, "Semantics for fuzzy and possibilistic optimization theory".

Kensai Soft Computing Society, August 9, 2005, University of Osaka, Osaka, Japan, "Large-scale fuzzy, and possibilistic optimization:
Theory, semantics and application to radiation therapy of tumors".

Kensai Soft Computing Society, August 9, 2005, University of Osaka, Osaka, Japan, "The fuzzy hypercube as a theoretical framework in determining criteria for intervening in elder financial abuse situations", with Dora G. Lodwick.

Berkeley Initiative on Soft Computing (a center of the Computer Science Department, University of California, Berkeley) – invited workshop, "A tutorial on the interfaces between fuzzy set theory and interval analysis"**,** BISCSE'05 – November 2, 2005 (the conference was November 2-5, 2005).

Berleant, D. J., Ferson, S., Kreinovich, V., and Lodwick, W. A., "Combining interval and probabilistic uncertainty: Foundations, algorithms, challenges – An overview," 4th International Symposium on Imprecise Probabilities and Their Applications, Pittsburgh, Pennsylvania, 2005

2004 – NAFIPS'04 Talk, Weldon A. Lodwick, K. David Jamison and Katherine A. Bachman, "Fuzzy and Possibilistic Optimization: Theory, Semantics and Algorithms for Solving Large Problems", **NAFIPS'2004 – Proceedings**, June, 2004.

2002
Highlighted Talk, 2002 SIAM Workshop on Validated Computing, May 22-25, Toronto, Canada "Validation Methods and Fuzzy Set Theory."

2001
10th IEEE Conference on Fuzzy Systems, Invited Speaker (Optimization and Decision Making) "Consistent Possibilistic Optimization in Radiation Therapy Problems," December, 2001, Melbourne, Australia.

NAFIPS'2001, "The Extension of Interval Validation Methods to Fuzzy Set Theory," July 2001, Vancouver, Canada.

2000
Ruhr-University Bochum (Germany), Invited Talk, "Fuzzy Optimization – Theory, Methods and State of the Art," Institute of Management and Operations Research, November 10, 2000.

Katholieke Universiteit Nijmegen (Netherlands), Informal talk to graduate students and professor of the Department Computer Science, "Interval Analysis Methods and Complexity Reduction in Proof Assistants (Computerized Proofs)," November 8, 2000.

University of Catania (Italy), Two Invited Talks, "Incorporating Uncertainty into GIS," and "Optimization Under Uncertainty," October 24, 25, 2000.

University of Coimbra, Invited Talk , "Optimization Under Uncertainty with Applications to Radiation Therapy," October 4, 2000.

NAFIPS'2000, "A Comparison of Fuzzy, Stochastic and Deterministic Methods in Linear Programming," July 2000, Atlanta, Georgia.

1999

NAFIPS'1999, "The Use of Fuzzy Optimization Methods for Radiation Therapy of Tumors,", June 10-12, 1999, New York City, NY.

1998
SIAM Annual Meeting – Minisymposium on Validated Solutions of Ordinary Differential Equations and Differential Algebraic Equations, "The Role of Constraints in Computing Validated Solutions to Differential Algebraic Equations."

1997
Institute for Mathematics and its Applications Conference on Computational Radiology and Imaging: Therapy and Diagnosis (invited speaker) – University of Minnesota, "Optimization Methods in Radiation Therapy of Tumors."

1996
University of Coimbra, Coimbra, Portugal, Department of Mathematics, "Error Propagation in Geographical Analyses as Implemented in a GIS."

University of Vienna, Vienna Austria, Department of Mathematics, "The Mathematics of Radiation Therapy of Tumors."

George Corliss (Marquette University) presenter, "The Role of Constraints in the Validated Solution of DAE's", International Conference on Interval Methods and Computer Aided Proofs in Science and Engineering, Wurtzburg, Germany.

1995
Arnold Neumaier (University of Vienna) presenter, "Validating Solutions of Differential-Algebraic Systems," Stanford University to a by invitation only retirement session for C.W. Gear.

SIAM Conference on Control, "Validation Methods for the Solution of Unconstrained Optimal Control Problems Using Differential-Algebraic Equations."

ICIAM Hamburg 95, "Correct Computation of Solutions of Differential Algebraic Control Equations," George Corliss presenter.

ISUMA-NAFIPS'95 (North American Information Processing Society) The 3rd International Symposium on Uncertainty Modeling and Analysis, Invited Talk, "Fuzzy and Interval Nonlinear Optimization: Theory and Computational Methods," September 15-20, 1995, College Park, Md.

1993
Conference on Numerical Result Verification, University of Southwest Louisiana, Lafayette, Louisiana (one talk and chaired one session), February 25 - March 1, 1993

1992
(By Invitation Only - German Government with NSF Travel grant) Schloss DagStuhl Internationales Begegnungsund Forschungszentrum fur Informatik Conference on Symbolic, Algebraic and Validated Numerical Computation Algebra, "Three Applications of Interval Methods for Computing Feasible Regions of Nonlinear Systems," Schloss DagStuhl, W-6648 Wadern, Germany, August 3-7, 1992

1991
Invited speaker at the 11th Roundtable for the development of an Intelligent Mathematical Programming System, November ,1991

1990
Invited Speaker at the ORSA/TIMS Spring meeting to a special session of Operations Research Applied to the Petroleum Industry (May 1990, Las Vegas, Nevada).

"Error Propagation and Sensitivity Analysis in Geographical Information Systems," National Center for Geographical Information and Analysis and the Department of Geography, University of Santa Barbara (February 15-17, 1990).

1989
Intelligent Mathematical Programming Roundtable #6 – "Extensions of LP Reductions for the (Nonlinear) Pooling Problem," University of Colorado, Denver, December 18, 1989.

1988

”Confidence Limits in Geographic Analysis - Suitability Analysis,” Specialist Meeting on Accuracy in Spatial Databases, National Center for Geographic Analysis, University of California, Santa Barbara, December 13-16, 1988.

“Finding Redundancies and Reduction in Fuzzy Linear Programming Problems,” The 13th International Symposium on Mathematical Programming, August 29-September 2, 1988, Tokyo, Japan (presented by H. Greenberg).

“Finding Redundancies and Infeasibilities in Linear Programs with Bounded Perturbed Coefficients,” 10th Symposium on Mathematical Programming with Data Perturbation, 26-27 May, 1988, The George Washington University, Washington, DC.

1987
”Fuzzy Set Theoretical Approaches to Natural Language Processing in Decision Support Systems,” NATO Advanced Study Institute, Val d'Isere, France, August, 1987.

”The CU-Denver Mathematics Clinic,” SIAM Conference on University-Industry Collaborations in the Mathematical Sciences, January 12-14, 1987, Claremont Colleges, Claremont, California.

PROFESSIONAL ACTIVITIES

2007 – IFSA’07, presented, Optimization special session co-chair (9 talks)
Special Issue of *Fuzzy Sets and Systems* (guest editor)

2006 – NAFIPS’06, presented

2005 – NAFIPS’05, attended
IFSA’05 – presented, Optimization special session co-chair (8 talks)
BISCSE’05 – invited workshop presentation

2004 NAFIPS’04, presentation
Associate Chair, Department of Mathematical Sciences, University of Colorado at Denver

2003 NAFIPS’03, co-organizer of special session on interval analysis

2002 – Organizing Committee, Scientific Committee, organizer of panels, and referee for a three-day symposium: 2002 SIAM Workshop on Validated Computing. I had the initial idea and the gathering of the group of people that make up the organizing committee.

Editor for the Special Issue for **Reliable Computing** on Linkages Between Interval Mathematics and Fuzzy Set Theory.

INFORM Workshop – University of Coimbra, Coimbra Portugal, July 1-August 2, 2002.

NAFIPS’02, co-organizer of special session on interval analysis

2001 – Editor for the Special Issue of **Fuzzy Sets and Systems** on the Interfaces Between Fuzzy Set Theory and Interval Analysis.

2000 – International Committee and Special Session Organizer (Fuzzy Optimization) for NAFIPS’2000.

Referee: I average 8-10 manuscripts per year

RELATED ACTIVITIES

1967-1969: I began a mathematics tutoring for at-risk African American high school students in Cincinnati, Ohio.
1969-1973: I obtained my teaching certificate, taught 8^{th} -12^{th} grade mathematics including advanced placement and remedial mathematics courses, rural Georgia.
1969-1973: I was actively involved with the local NEA becoming the first white president (under a ten year racial rotation) of the desegregated association for
Burke County, Georgia. I did a lot of work on behalf of teachers from investigation of firings to lobbying to seeking improvements in public education
for the county.

1973: Upward Bound Teacher, Payne College (one of the traditional Afro-American colleges), Augusta, Georgia.
1973-1977: Involved with a volunteer program at the Federal Penitentiary, Salem, Oregon to teach mathematics courses to inmates who received college credit of these courses.
1977-1982: I worked in Central America and Caribbean doing workshops and technology (geographical information systems, large economic models for analysis of resource trade-off issues). I also worked with Syrian officials to transfer computerized systems for agricultural census (statistical systems).
1987-1988: I was "on loan" (EPA Grant) to EPA Region 8 as a resident mathematician and help develop region 8's geographical information system and analysis laboratory.

OTHER: I speak Portuguese and Spanish somewhat fluently.

MATHEMATICS CLINICS TAUGHT

Mathematical Models for Peace – Fall 2004
UCHSC Department of Radiation Oncology- Medical Image Processing and Radiation Therapy of Tumors (Fall semester, 2002)
Computerized Medical Systems (Saint Louis, Missouri) - Radiation Therapy of Cancer Tumors (two semesters)
United States Department of Agriculture, Plant Variety Protection Office (Beltsville, Maryland) - Intelligent System for Plant Protection Applications (one semester)
Martin Marietta Company - Dynamical Systems and Neural Networks (two semesters)
Water Models – un-sponsored (one semester)
Central Bank of Denver - Portfolio Models (one semester)

SERVICE

Director and Secretary (1997-2009), a publically/community elected position – South Englewood Sanitation District 1

Chair (2005-2009) Faculty Senate Privilege and Tenure Committee – University of Colorado Faculty Senate Committee for Grievances and Dismissals (three university and four campus-wide committee)

Department of Mathematical and Statistical Sciences Executive Committee (elected in 2009)