CURRICULUM VITAE
Timothy J. Ross

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CURRICULUM VITAE

Timothy J. Ross, PhD, PE, F.ASCE

Department of Civil Engineering
University of New Mexico
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Rank and Titles:

Past-President, President (and President-elect), UNM Faculty Senate (2010-2013)
Professor and Regents' Lecturer, Civil Engineering (current)
Visiting Professor, Universidade de São Paulo, Brazil (Nov-Dec 2012)
Fulbright Fellow, Pontifica Universidade Catolica, Rio de Janeiro, Brazil (2013-14)
Professor of Electrical and Computer Engineering (current; joint appointment)
Visiting Professor, School of Engrg, Gonzaga University, Spokane, WA (2008-09)
Senior Fulbright Fellow, Dept. of Civil Engrg, University of Calgary, Alberta (2001-02)
Senior Fellow, Army Environmental Policy Institute, Georgia Tech University (1995-96)

Years at UNM: 26 (Joined faculty in January 1987)

A. PERSONAL DATA, EDUCATION, AND EXPERIENCE

A.1 Personal Data
Birthplace: Spokane, Washington
Four (4) Children: Ages 27 through 36

A.2 Formal Education
Ph.D., Structural Mechanics, Stanford University, 1983
M.S., Structural Engineering, Rice University, 1973
B.S., Civil Engineering, Washington State University, 1971

A.3 Professional Experience
1994-Present: Professor and Regents' Lecturer, University of New Mexico,
2008-2009: Sabbatical Leave, Visiting Professor, Gonzaga University, Spokane, WA
1999-Present: Faculty Affiliate, Los Alamos National Laboratory
2001-2002: Sabbatical Leave, Senior Fulbright Fellow, University of Calgary, Visiting Professor, Calgary, Alberta, Canada
2008-2009: Sabbatical Leave, Gonzaga University, Spokane, WA
Albuquerque, NM
1994-1997: Visiting Senior Fellow, US Army Environmental Policy Institute,
Sabbatical Leave (1994-95), Georgia Institute of Technology, Atlanta, GA
1987-1994: Associate Professor, University of New Mexico, Albuquerque, NM
Granted Tenure, June 1993.

1978-1986: (GS-14) Senior Research Structural Engr, Phillips Lab, Albuquerque, NM

- Managed quarter-million-dollar per year Air Force Office of Scientific Research (AFOSR) basic research program in mechanics, failure and constitutive theories
- Conducted research for AFOSR in: stochastic failure, expert systems, fuzzy logic
- Developed programs in materials, expert systems and artificial intelligence
- Directed multimillion-dollar research program in structural fragility
- Reviewed, selected and awarded R&D research efforts
- Consulted for the Defense Meteorological Satellite Program
- Advised the CIA, DIA, and other Defense organizations
- Graduate Student Research Advisor, Washington State University

1973-1978: (GS-13) Vulnerability Engr, Defense Intelligence Agency, Washington, DC

- Developed and used finite element, finite difference codes
- Developed and used graphics processing computer codes
- Analyzed complex foreign structure survivability
- Co-managed research programs with the Army and DNA
- Briefed Secretary of Defense level politicians and high-ranking Pentagon officials on Foreign technical capabilities

A.4 Honors and Awards

- Selected for Fulbright Award for study in Brazil, fall 2013.
- Nominated for UNM School of Engineering Senior Research Faculty Excellence Award, 2007
- Nominated for UNM School of Engineering Senior Research Faculty Excellence Award, 2006
- ASA/SIAM Award for the book, Fuzzy Logic and Probability Applications, August 2003; American Statistical Association and the Society for Industrial and Applied Mathematics.
- Best Paper in Working Group-1, Strategic Operations at the 71st Military Operations Research Society Symposium, Dahlgren, VA, June 2003.. Engineering Index: An Engineering Certification/Qualification Metric , J. Booker, T. Ross, R. Dolin, C. Faust, M. Hamada, L. Najera, and B. Reardon; nominated as a finalist in the 71st MORSS Barchi Prize Competition for overall BEST PAPER.
- Defense Programs Award of Excellence, 2002, for Significant Contributions to the Stockpile Stewardship Program, Department of Energy, National Nuclear Security Administration
- Senior Fulbright Scholar, J. William Fulbright Foreign Scholarship Board, 2001-2002
- Nominated for UNM School of Engineering Faculty Teaching Excellence Award, 1999, 2000
- Nominated for UNM School of Engineering Senior Research Faculty Excellence Award, 1998
- Listed in Who's Who in Technology, 1996
- UNM Regents' Lecturer (elected), 1994
- Hero Award, NASA Training Project, 1993
- Fellow, American Society of Civil Engineers (Elected in 1992)
- Mentor for UNM Regents Scholars Program; Classes of 1992, 1993
- Listed in Dictionary of International Biography, 23rd Edition, 1993-94
- Listed in Who's Who in American Business Leaders, 1992
- Listed in American Men and Women of Science, 1991, 1992, 1993, 1994

- Advisor to the National Research Council, Research Associateship Program, 1984-86
- AFWL Superior Performance, 1984, 1985; Outstanding Performance, 1980
- Citation for Excellence in 1984 AFOSR Research Accomplishments Book
- Selectee for Educational Sabbatical: AFWL, 1981; DIA, 1977
- Rice University Fellow, 1971-1973
- President's List (WSU), 1970-1971
- Boeing Scholarship (WSU), 1969

A.5 Civic Activities

- Board Member, Stanford Alumni Club of New Mexico (2007-present)
- President, UNM Faculty/Staff Club (2006-2008)
- Chairman, Environmental Systems Management, National Technological University Faculty Planning Committee: (1992-2003)
- Past President, Executive Committee, UNM Chapter, Sigma Xi, 1999-01
- Commissioner, Western Girls Advanced Ice Hockey League, 1999-01
- President, UNM Chapter, Sigma Xi, 1996-98
- Founder and Asst. Coach, University of New Mexico Ice Hockey Club, 1997-2001
- President, Land of Enchantment Amateur Hockey Association, 1996-99
- President, New Mexico Amateur Hockey Association, 1995-96
- Vice President, New Mexico Amateur Hockey Association, 1994-95
- Coach, New Mexico youth hockey teams, 1994-1998
- Board of Directors and President, Kachina Technologies, Inc. 1989-2006
- Board of Directors, Object Science Corporation, 1994-2005

B. TEACHING, SEMINARS, STUDENT SUPPORT, LAB DEVELOPMENT

Courses numbered 100-400 are primarily undergraduate, with 400 level courses for both undergraduates and graduate students
Courses numbered 500-600 are primarily graduate classes

B.1 Courses Currently Teaching
Spring 2013, CE 308 Structural Analysis (45 students)
Spring 2013, CE 521 Earthquake Engineering (6 students)

B.2 Teaching Evaluations from Students

IDEAS RATINGS FOR COURSES AND INSTRUCTORS
(Scores are out of Possible 5.0)

Course Title	Semester	Instructor	Course	Responses/Enrollment
No classes, Fall 2012, granted a research semester by Provost				
CE 521 Earthquake Engineering	Spring 2012	3.4	4.2	5/6
CE 518 Elastic Stability	Fall 2011	4.8	4.5	4/4
CE 302 Strength of Materials	Spring 2011	3.8	3.8	36/48
CE 521 Earthquake Engineering	Spring 2011	3.3	3.3	6/7
CE 548 Fuzzy Logic	Fall 2010	4.0	3.6	8/12
CE 598 Masonry and Timber Design	Fall 2010	4.6	4.4	5/6
CE 521 Earthquake Engineering	Spring 2010	4.3	4.1	16/20
CE 308 Structural Analysis	Spring 2010	4.5	4.2	24/34
CE 548 Fuzzy Logic	Fall 2009	3.0	3.3	9/13
CE 518 Structural Stability	Fall 2009	3.9	4.1	8/12
CE 521 Earthquake Engineering (internet)	Spring 2009	3.9	3.1	8/12
***ENSI 481- Fuzzy Systems (Gonzaga)	Fall 2008	5.5	NA	9/9

ICES RATINGS FOR INSTRUCTOR
(Scores are out of Possible 6.0)

Course Title	Semester	Mean Mdn	Standard Dev	Class Size
CE 308-Structural Analysis	Spring 2008	5.1	1.07	30
CE 518-Fuzzy Logic with Engineering	Spring 2008	5.3	0.74	7
CE 598-Timber and Masonry Design	Spring 2008	4.5	1.41	8
CE 518-Structural Stability	Fall 2007	4.9	0.8	5
CE 520-Structural Dynamics	Fall 2007	6.0	0.0	2
CE 308-Structural Analysis	Spring 2007	4.7	1.14	15
CE 548-Fuzzy Logic	Spring 2007	5.1	0.73	10
CE 520-Structural Dynamics	Fall 2006	4.8	0.43	5
CE 499 Senior Design	Fall 2006	3.7	1.48	7
CE 308-Structural Analysis	Spr 2006	5.2	0.66	23
CE 548-Fuzzy Logic Applications	Spr 2006	5.8	0.40	7
CE 520-Structural Dynamics	Fall 2005	5.6	0.50	9
CE 521-Earthquake Engineering	Spr 2005	4.8	0.94	6
CE 308-Structural Analysis	Spr 2005	4.1	1.36	19
CE 548-Fuzzy Logic Applications	Spr 2005	5.5	0.96	8
CE 520-Structural Dynamics	Fall 2004	4.8	1.06	9
CE 518 Elastic Stability	Spr 2004	5.6	1.03	10

CE 691 CE Seminar Series	Fall 2003	5.6	0.91	11
CE 520-Structural Dynamics	Fall 2003	5.1	1.19	9
CE 548 Fuzzy Logic Applications	Fall 2003	5.5	0.90	10
CE 521 Earthquake Engineering	Spring 2003	5.6	0.66	11
CE 308-Structural Analysis	Spring 2003	5.0	0.64	19
CE 520-Structural Dynamics	Fall 2002	5.6	0.70	8
CE 548 Fuzzy Logic Applications	Fall 2002	5.8	0.43	9
**ENCI 619 Fuzzy Systems	Winter 2002	6.5	0.65	12
**ENCI 639 Structural Dynamics	Fall 2001	6.2	0.75	5
CE 520-Structural Dynamics	Spring 2001	6.0	0.00	5
CE 308-Structural Analysis	Spring 2001	4.5	1.18	22
CE 501 Advanced Mech. Materials	Fall 2000	5.4	0.62	13
CE 521 Earthquake Engineering	Fall 2000	6.0	0.00	4
CE 520-Structural Dynamics	Spring 2000	5.5	0.49	5
CE 308-Structural Analysis	Spring 2000	3.3	1.60	16
CE 548 Fuzzy Logic Applications	Fall 1999	5.6	0.70	8
CE 521 Earthquake Engineering	Fall 1999	5.2	0.87	9
CE 520-Structural Dynamics	Spring 1999	5.4	0.49	5
CE 308-Structural Analysis	Spring 1999	4.8	1.15	22
CE 501 Advanced Mech. Materials	Fall 1998	5.6	0.81	9
CE 551 Advanced Fuzzy Logic*	Fall 1998	5.0	0.70	5
CE 520-Structural Dynamics	Spring 1998	5.8	0.37	6
CE 308-Structural Analysis	Spring 1998	5.0	1.05	43
CE 401 Advanced Mech. Materials	Fall 1997	5.0	1.02	15
CE 548 Fuzzy Logic*	Fall 1997	5.0	0.73	15
CE 520-Structural Dynamics	Spring 1997	5.6	0.70	9
CE 308-Structural Analysis	Spring 1997	5.5	1.14	24
CE 540 Risk Assessment*	Fall 1996	4.2	0.74	5
CE 421-Structural Dynamics	Spr 1996	5.3	0.47	6
CE 308-Structural Analysis	Spr 1996	4.2	1.29	30
CE 548 Fuzzy Logic*	Fall 1995	5.0	1.09	5
CE 540 Risk Assessment*	Fall 1995	N/A	N/A	
CE 401 Advanced Mech. Materials	Spr 1994	5.3	0.94	11
CE 252 Computational Methods	Spr 1994	5.5	1.03	15
CE 548 Fuzzy Logic*	Fall 1993	5.9	0.31	9
CE 551 Risk Assessment*	Fall 1993	N/A	N/A	
CE 494 Honors Seminar	Spr 1993	5.5	0.50	2
CE 450 Probability Models	Spr 1993	5.5	0.82	4
CE 493 Honors Special Projects	Spr 1993	N/A		
CE 421 Structural Dynamics	Fall 1992	5.8	0.40	7
CE 551 Fuzzy Logic*	Fall 1992	5.6	0.70	9
CE 551 Risk Assessment*	Fall 1992	5.3	0.83	7
CE 202 Statics	Spr 1992	5.1	0.95	33
CE 491(252)Computational Methods	Spr 1992	5.0	0.81	4
CE 494 Senior Honors	Spr 1992	5.3	0.47	3
CE 450 Probability Models	Fall 1991	5.2	1.16	8
CE 551 Risk Assessment*	Fall 1991	5.0	1.13	9
CE 302 Strength of Materials	Fall 1991	5.2	1.07	19
CE 491(252) Computational Methods	Spr 1991	5.7	0.46	7
CE 551 Fuzzy Logic*	Spr 1991	5.1	0.56	10
CE 308 Structural Analysis	Spr 1991	5.0	0.72	19
CE 450 Probability Models	Fall 1990	5.8	0.43	8
CE 551 Risk Assessment*	Fall 1990	5.0	0.81	7
CE 491(252) Computational Methods	Spr 1990	5.4	0.50	9
CE 551 Fuzzy Logic	Spr 1990	5.3	0.43	8
CE 421 Structural Dynamics	Fall 1989	5.7	0.46	3

CE 450 Probability Models	Fall 1989	5.3	0.66	8
CE 491(252) Computational Methods	Spr 1989	4.8	1.08	14
CE 450 Probability Models	Fall 1988	6.0	0.0	5
CE 450 Probability Models	Fall 1987	5.1	0.73	9
CE 202 Statics	Spr 1987	4.7	1.25	39

* These courses do not include evaluations from ITV students
**Courses taught on sabbatical at the University of Calgary; scores out of a possible 7.0
***Course taught on sabbatical at Gonzaga University; scores out of a possible 7.0

B.3 New Courses Developed

1. CE 650 Structural Reliability, Spring 1987; not taught because of insufficient enrollment
2. Combined CE 340 and CE 450 into a new course with significant new material, CE 450: Uncertainty and Risk in Engineering (Probability Models); Fall, 1987
3. Developed a new Course, CE 548: Fuzzy Logic with Applications; Spring, 1990
4. Developed a new Course, CE 540: Risk Assessment in Hazardous Waste Management; Fall, 1990
5. CE 494 Honors Seminar, Spring 1993
6. CE 252 Computational Methods, Spring 1994; added probability/statistics material to a 2-unit course to make it a 3-unit course
7. CE 551, Advanced Fuzzy Logic; developed for Fall 1998 offering
8. CE 521 Earthquake Engineering; Fall 1999, co-developed with Percy Ng.
9. ENCI 639 Structural Dynamics; Fall 2001, added computational material while on sabbatical leave
10. ENCI 619 Fuzzy Systems; Winter 2002, added a computational section on the automated generation of membership functions. Also, developed the course for WebCT application, and loaded several modules in this mode
11. CE 551 Masonry and Timber Design-Spring 2008, New design course being developed
12. CE 521 Earthquake Engineering; combined two classes, CE 520 Structural Dynamics and CE 521 Earthquake Engineering into one class, CE 521. Taught this combined class for the first time on the internet, Spring 2009.

B.4 Courses Taught on Instructional Television or the Internet

The courses described here have been summarized above, but because they were offered on ITV and, in many cases, on the TV circuits of the National Technological University in Ft. Collins, Colorado, they involved considerable more administration and student advising.

1. Risk Assessment for Hazardous Waste Management, Fall Semester 1990; also offered on TV to the National Technological University
2. Fuzzy Logic with Engineering Applications, Spring Semester 1991
3. Risk Assessment for Hazardous Waste Management, Fall Semester 1991; also offered on TV to the National Technological University
4. Fuzzy Logic with Engineering Applications, Fall Semester 1992; also offered on TV to the National Technological University
5. Risk Assessment for Hazardous Waste Management, Fall Semester 1992; also offered on TV to the National Technological University

6. Fuzzy Logic with Engineering Applications, Fall Semester 1993; also offered on TV to the National Technological University
7. Risk Assessment for Hazardous Waste Management, Fall Semester 1993; also offered on TV to the National Technological University
8. Fuzzy Logic with Engineering Applications, Fall Semester 1995; also offered on TV to the National Technological University
9. Risk Assessment for Hazardous Waste Management, Fall Semester 1995
10. Risk Assessment for Hazardous Waste Management, Fall Semester 1996
11. Fuzzy Logic with Engineering Applications, Fall Semester 1997; also offered on TV to the National Technological University
12. CE 521 Earthquake Engineering, online course on WebCT, Spring 2009.
13. CE 548 Fuzzy Logic with Engineering Applications, online course WebCT, Fall 2009

B.5 Short Courses Developed and Taught

1. Fuzzy Logic with Applications, UNM Professional Development, October 16-18, 1991, Albuquerque, NM.
2. Hands-On Fuzzy Logic, George Washington University, Washington, DC, March 16-20, 1992.
3. Hands-On Fuzzy Logic with Applications, UNM Professional Development, April 6-10, 1992, Albuquerque, NM.
4. Risk Assessment for Hazardous Waste Applications, May 21, 1992; University of Illinois and Army Environmental Policy Institute, Champaign, IL.
5. Advanced Fuzzy Logic, UNM Professional Development, July 15-17, 1992, Albuquerque, NM.
6. Hands-On Fuzzy Logic with Applications, UNM Professional Development, November 11-13, 1992, for Sandia National Labs, Albuquerque, NM.
7. Hands-On Fuzzy Logic with Applications, UNM Professional Development, Dec. 7-9, 1992, Phoenix, Arizona.
8. Hands-On Fuzzy Logic with Applications, UNM Professional Development, May 10-12, 1993 and June 23-25, 1993, Dayton, OH.
9. Hands-On Fuzzy Logic with Applications, UNM Professional Development, June 30-July 2, 1993, Sandia National Labs, Albuquerque, NM.
10. Fuzzy Logic with applications in Control Engineering, New Mexico Highlands University, February, 1996.
11. Fuzzy Logic with applications to Geotechnical Engineering, Syeman and Associates, LLC, Calgary, Alberta, October 1997.
12. Fuzzy Logic with applications in Control Engineering, New Mexico Highlands University, November-December 1998.
13. Fuzzy Logic with applications in Control Engineering, New Mexico Highlands University, October-November 1999.
14. Fuzzy Systems in Environmental Systems; Belo Horizonte, Brazil, for Nuclear Technology Development Center (CDTN); July 2006
15. Fuzzy Systems in Nuclear Waste Management: Rio de Janeiro, Brazil, for National Nuclear Energy Commission (CNEN); June 2007

16. Fuzzy Systems for Decision Support Systems in Engineering: University Federal Rio de Janeiro, September 2007

B.6 Invited Lectures and Seminars

Place	**Date**	**Topic**
OASIS New Mexico, Albuquerque, NM	March 29, 2013	Shades of Grey: The Uses of Fuzzy Logic
Stanford Alumni Group, Albuquerque, NM	March 24, 2011	Fuzzy Logic: What is it and how we use it
Pacific Northwest National Laboratory	April 6, 2009	Fuzzy cognitive maps and Fuzzy agent-based models
12 Int. Conf. Struct. Engrs, Cairo, Eqypt	Dec 10, 2007	Keynote Address on AI in Structural Engrg
Univ Federal Rio de Janeiro, Brazil	Sep 24-26, 2007	Fuzzy Systems in Engineering
CNEN, Brazil	June 4-6, 2007	Fuzzy Systems in Nuclear Waste Management
Nuclear Technology Dev Cntr, Brazil	July 12-14, 2006	Fuzzy Systems in Environmental Planning
Univ. of New Mexico	Sep. 21, 2005	Total Uncertainty in Reliability Assessments
Univ. of New Mexico	Dec. 11, 2003	Forensic Engineering, Studying Failures in CE
George Mason University	Apr. 23, 2003	Possibility Applications in Civil Engrg
UNM Civil Engrg Department	Sep. 5, 2002	Possibility Theory in Railway Safety
City of Calgary, Storm Water Department	July 30, 2002	Use of Fuzzy Logic in Storm Runoff Design
Univ. of Calgary, Civil Engineering	July 26, 2002	Fuzzy Systems: Sphere Buckling & Rail Safety
Univ. of Calgary, Chem. Engrg class	Nov. 29, 2001	Fuzzy Systems for Process Control
Calgary Chamber of Commerce (ASME)	Nov. 21, 2001	Uses of Possibility Theory in Gas Pipelines
Colorado State University (CE)	Nov. 1, 2000	Reliability using Possibility Theory
UNM Civil Engrg Department	Feb. 10, 2000	Athens, Greece, Earthquake Damage
Los Alamos National Lab (ESA-EA)	Dec. 15, 1999	Possibility Theory
Los Alamos National Lab (ESA-EPE)	Nov. 17, 1999	Axiomatic Structure of Fuzzy Set Theory
Los Alamos National Lab (TSA)	Oct. 22, 1999	Probability Theory vs. Fuzzy Set Theory
Oxford University, Oxford, UK	Sep. 13, 1999	Tutorial on Fuzzy Logic
Cavanaugh's Inn, Spokane WA (NSPE)	Aug. 21, 1999	A Professional School of Engineering
Colorado State University (CE)	Feb. 25, 1999	Infrastructure Research using ESEM
UNM Mechanical Engrg Dept Seminar	Jan. 26, 1999	Fuzzy Sets and Fuzzy Logic
Aristotle University Thessaloniki, Greece	Oct. 16-20, 1998	Current Trends in Fuzzy Logic
George Mason University/ASCE	March 16, 1998	Information Technology in Engineering Edu.
Arizona State Univ. (Anthropology)	Jan. 30,1998	Fuzzy Logic Classification in Anthropology
UNM Dept. of Civil Engrg	Nov. 13, 1997	A Professional Engineering Degree
George Mason University	Apr. 21, 1997	Trends in Engineering Education
UNM Dept. of Civil Engrg	Apr. 3, 1997	Fuzzy Fault Trees
Arizona State Univ. (Anthropology)	Mar. 27, 1997	Fuzzy Classification Methods
Sandia National Laboratories	Sept. 14, 1995	Risk Assessment in High Consequ. Oper.
Georgia Tech University	July 5,7,10-1995	Risk Assessment (3 lectures-CE8103B)
UNM Dept. of Physics	9 Feb 1994	FSEM and ESEM: Microscopy
UNM Civil Engineering	21 Oct 1993	D.Eng as the first Engineering Degree
NC State University (Micro. Cntr)	17 Mar 1993	Advancements in ESEM
UNM Medical School	22 Oct 1992	Novel Methods of Electron Microscopy
Univ. of New Mexico	26 Mar 92	Environmental Electron Microscopy
Univ. of New Mexico	6 Nov 91	FSEM and ESEM: Microscopy
Jet Propulsion Laboratory, CA	30 May 1991	Fuzzy Logic in Dynamic Models
UNM CAD Laboratory	18 Apr 1991	Assessing Damping Using Fuzzy Sets
DNA Numerical Methods, SRI	11 Oct 1990	Dynamic Eulerian Finite Element Codes
12th ICEM Congress, Seattle, WA	16 Aug 1990	Fast-Scanning SEM
Jet Propulsion Laboratory, CA	30 May 1990	Predictive Accuracy of Dynamic Models
RE/SPEC Inc.	21 Dec 89	Structural Dynamics Models for NASA
University of New Mexico	29 Nov 89	Structural Dynamics Models for NASA
University of New Mexico	13 Sept 89	Fast-Scan SEM: UNM-Industry Partners
Los Alamos National Labs	22 Aug 89	Fast-Scan SEM
University of New Mexico	17 May 88	High-Imaging Speed SEM

University of New Mexico	1 Oct 87	Pattern Recognition of MRI Brain Images
SPOCADE CAD/CAM Conference	11 Aug 87	3D Finite Element Methods
University of New Mexico	27 Feb 87	Pattern Recognition in Structural Failure
Air Force Office of Scien. Res.	24 Sep 86	Heuristic Analysis of Structural Damage
AFWL LIR Symposium	28 Aug 86	Assessment of Damage Using Linguistics
University of New Mexico	26 Aug 86	Shock Diagnostics
Sandia National Laboratory	5 Jun 86	Dispersion Relations in Concrete
BDM Corporation	3 Jun 86	Expert Systems in CE
Washington State University	7 Mar 86	Dispersion Relations in 1D Wave Theory
University of New Mexico	28 Feb 86	Civil Engineering Basic Research
Air Force Weapons Laboratory	2 May 85	Probability and Bayes Theory
Aerospace Corporation	25 Feb 85	Fuzzy Sets and Survivability Analysis
Washington State University	5 Oct 84	The Theory and Use of Fuzzy Sets
Air Force Weapons Laboratory	14 May 84	Fuzzy Logic and Vulnerability
Air Force Weapons Laboratory	13 Oct 83	Direct Shear Failure in RC Members

B.7 Graduate Students Supported on Grants

Name	**Project**	**Support**	**Dates**	**Degree (Dept)**
Ashish Vasil	NSF Dynamic Moire	$21,557	1990-92	MSCE (CE)
Ashish Vasil	NSF Dynamic Moire	$13,235	1992-93	PhD Program (CE)
JinLu Wang	NSF Dynamic Moire	$4,050	1991-92	PhD Program (CE)
Steve Verzi	NMSHTD Expert System	$13,222	1988-90	MSCS (CS)
Z. Huang	NMSHTD Expert System	$ 700	1988	MS Program (CE)
L. Yang	NMSHTD Expert System	$1,400	1988	MS Program (CE)
Steve Verzi	NASA/EMA Struc. Dynamics	$9,585	1990-91	PhD Program (CS)
Steve Verzi	Object-Oriented Numerical Codes	$10,925	1991-92	PhD Program (CS)
Lewis Wagner	Object-Oriented Numerical Codes	$12,386	1990-91	MS Program (CS)
Ward Deng	Object-Oriented Numerical Codes	$23,825	1991-93	PhD Program (CS)
Robert Sharp	Environmental SEM Device	$8,400	1990-91	MSCE(CE)
Bernadette Saiz	Biocorrosion using ESEM	$1,260	1991-92	MS Program (Biology)
Steve Geiger	Biocorrosion using ESEM	$8,886	1992	MS Program (CE)
Sudeep Rao	Biocorrosion using ESEM	$2,975	1992-93	PhD Program (CE)
Joe Pelligrino	Fuzzy Control of NASA Structure	$4,500	1993	MS Program (ME)
Joe Trumm	Risk Assessment	$11,700	1993	MS Program (CE)
Sunil Donald	Risk Assessment	$5,525	1993	PhD Program (CE)
Sunil Donald	Risk Assessment	$27,000 (schol)	1994-96	PhD Program (CE)
Sudeep Rao	Biocorrosion using ESEM	$36,000 (schol)	1994-97	PhD Program (CE)
Ward Deng	Object-Oriented Numerical Codes	$36,000 (fellow)	1993-96	PhD Program (CS)
Ashish Vasil	NSF Dynamic Moire	$30,000 (fellow)	1994-96	PhD Program (CE)
David Silva	NASA Minority Fellowship	$16,000	1995-96	PhD Program (CE)
Terese Gabocy	Ecological Risk Assessment	$15,000 (fellow)	1995-96	MS Program (CE)
Jonathon Lucero	NASA Minority Fellowship	$32,000 (fellow)	1997-99	MS Program (CE)
Jonathon Lucero	NASA Minority Fellowship	$16,000 (fellow)	1999-00	PhD Program (CE)
Gregory Chavez	NASA Minority Fellowship	$16,000 (fellow)	2000-02	MS Program (CE)
Jonathon Lucero	NASA Minority Fellowship	$16,000 (fellow)	2000-01	PhD Program (CE)
Jonathan Lucero	NASA Marshall Space Ctr	$48,000	2002-2004	PhD Program (CE)
Chris Treml	LANL	GRA,	1999-2004	PhD Program (EE)
Greg Chavez	LANL	GRA,	2003-2007	PhD Program (CE)
Rhonda Young	Sandia	$8,000	2003-04	MS Program (CE)
Vijaya Anant	DTRA	$13,000	2005-2006	MS Program (CE)
Kinnan Kline	LANL	GRA,	2005-2006	PhD Program (CE)
Dylan Harp	LANL	GRA,	2006-2009	PhD Program (CE)
Roshan Rommahan	DTRA	18,000	2007-2009	PhD Program (CE)

Jung Kim	DTRA	25,000	2008-2009	PhD Program (CE)
Ali Yousefi	DTRA	$48,000	2009-2010	PhD Program (CE)
Angela Montoya	LANL	GRA	2011	PhD Program (CE)

B.8 Undergraduate Students Supported on Grants
(through Fall semester '97)

Name	**Project**	**Support**	**Dates**	**Degree (Dept)**
Tom Bosiljevac	NSF-REU	$2,500	1990	BS Program (CE)
Lucie Chartier	NSF-REU	$2,500	1990	BS Program (CE)
Audrey Blea	NSF-REU	$2,500	1990	BS Program (ME)
Steve Geiger	NSF-REU	$2,500	1990	BS Program (CE)
Jerry Lovato	NSF-REU	$2,500	1990	BS Program (CE)
Jim Buckman	NSF-REU	$2,500	1990	BS Program (CE)
Jim Buckman	Air Force Project	$1,000	1990-91	BS Program (CE)
Laxmi Akkaraju	NSF-REU	$2,600	1991	BS Program (CE)
Kelly Golis	NSF-REU	$2,600	1991	BS Program (CE)
Tom Kratochvil	NSF-REU	$2,600	1991	BS Program (CE)
Rita Vandervoss	NSF-REU	$2,600	1991	BS Program (CE)
Robert Bistline	NSF-REU (Penn State Univ.)	$2,600	1991	BS Program (CE)
Robert Weber	NSF-REU (U. North Colorado)	$2,600	1991	BS Program (Physics)
Minerva Chavez	NSF-REU (NM Tech Univ.)	$2,600	1991	BS Program (Engrg)
Miguel Trujillo	NSF-REU (NM Tech Univ.)	$2,600	1991	BS Program (Engrg)
Jennifer Minnick	NSF-REU (Virg. Polytechnic)	$2,600	1991	BS Program (CE)
Reagen Sentelle	NSF-REU (N. Carolina State)	$2,700	1992	BS Program (CE)
Tanita Gilbert	NSF-REU (Tulane Univ.)	$2,700	1992	BS Program (CE)
Aaron Eldridge	NSF-REU (Cameron Univ.)	$2,700	1992	BS Program (CE)
Michael Ross	NSF-REU (Fort Lewis College)	$2,700	1992	BS Program (CE)
Tricia Morin	NSF-REU	$2,700	1992	BS Program(ME)
Tracy Montoya	NSF-REU	$2,700	1992	BS Program (EE)
Jason Casperson	NSF-REU	$2,700	1992	BS Program (CE)
Scott Pringle	NSF-REU	$2,700	1992	BS Program (CE)
Eric Pease	NSF-REU	$2,700	1992	BS Program (CE)
Patrick Moore	NSF-REU	$2,700	1992	BS Program (CE)
Jerry Lovato	NMSHTD	$200	1992	BS Program (CE)
Scott Pringle	NMSHTD	$1,200	1992	BS Program (CE)
Tanya Gallegos	WERC	$2,800	1993	BS Program (CE)
Gina Kates	NSF-REU (North Carolina State)	$2,800	1993	BS Program (CE)
Kelly Riddick	NSF-REU (North Carolina State)	$2,800	1993	BS Program (CE)
Becky Thompson	NSF-REU (College of Loyola)	$2,800	1993	BS Program (Math)
Tanya Gallegos	CIMD (Arizona State)	$600	1993	BS Program (CE)
Barbara Ochoa	CIMD (Arizona State)	$600	1993	BS Program (CE)
Rita Dominguez	CIMD (Arizona State)	$600	1993	BS Program (CE)
Carlos Salazar	NASA Minority	$1,000	1994-96	BS Program (CE)

B.9 MS Thesis Committee Member

Name	**Degree**	**Department**	**Date**
Z. Tan	MS	Civil Engineering	1987
Doug Everhart	MS	Civil Engineering	1989
Ferhat Akgul	MS	Civil Engineering	1989
Dennis Keierleber	MS	Civil Engineering	1990
Eugene Fosness	MS	Civil Engineering	1991
Myung Roo	MS	Civil Engineering	1991
Sam Subia	MS	Civil Engineering	1991
Tom Brandlhuber	MS	Construction Engrg	1991

D. Satpathi	MS	Civil Engineering	December, 1992
Nnv Prasad	MS	Civil Engineering	December, 1992
Richard Castillo	MS	Civil Engineering	May, 1993
Denis Barak	MS	Electrical Engineering	May 1993
E. Kristjansson	MS	Electrical Engineering	May, 1993
Bob Meyers	MS	Civil Engineering	May, 1994
Doug Miller	MS	Electrical Engineering	August 1994
Roberta Shaw	MS	Chemical Engrg	1995
Guoping Wang	MS	Mechanical Engrg	May, 1996
Anish Malanthara	MS	Civil Engineering	July 1997
Sandi Keene	MS	Civil Engineering	April 1998
Monica Starnes	MS	Civil Engineering	July 1998
John Dipollonio	MS	Construction Engrg	November 1998
Aly El-Osery	MS	Electrical Engineering	November 1998
Lorena Sanchez	MS	Civil Engineering	November 1998
Marcos Chavez-Abeyta	MS	Mechanical Engineering	March 1999
Monica Funston	MS	Civil Engineering	May 1999
David Bowers	MS	Mechanical Engrg	Nov. 1999
Tom Wilkins	MS	Mechanical Engrg	May 2000
Jay Brown	MS	Civil Engineering	May 2000
Rajani Jayaseelan	MS	Civil Engineering	Nov. 2000
Ge Li	MS	Civil Engineering	Nov. 2000
Robert Valerio	MS	Civil Engineering	March 2001
Sean Melville	MS	Civil Engineering	May 2003
Rachel Mintz	MS	Chemical Engineering, University of Calgary;	May 2004
Scott Horton	MS	Civil Engineering	April 2006
Shilpa Mareddy	MS	Civil Engineering	May 2006
Ergodan Altunok	MS	Electrical Engineering	August 2006
Scott Horton	MS	Civil Engineering	August 2006
Francisco Roybal	MS	Civil Engineering	Dec 2006
Craig Sheffield	MS	Civil Engineering	April 2007
Jeremy Banik	MS	Civil Engineering	May 2008
Molly McCuskey	MS	Civil Engineering	May 2008
Venekanta Chakravarthy	MS	Computer Science	May 2008
Carlos Orgeta	MS	Civil Engineering	May 2008
R. Zaragoza	MS	Civil Engineering	May 2009
Navid Savakhand	MS	Civil Engineering	August 2010
Chris Murray	MS	Civil Engineering	November 2010
Ryan Schnalzer	MS	Civil Engineering	May 2011

B.10 PhD Dissertation Committee Member

Myung C. Roo	PhD, Civil Engineering, November 1994; Topic: "Comprehensive Characterization of Asphalt Concrete Mixtures and Pavement Soil Materials".
Ke Luo	PhD, Chemistry, July 1994; Topic: "Scanning Force Microscopy - Applications and Instrument Developments"
Nahrul Alang-Rashid	PhD, Nuclear Engineering, December, 1992; Topic: "Nuclear Reactor Control Using Tunable Fuzzy Logic Controllers."
Kishan Kumbla	PhD, Electrical and Computer Engineering, April, 1997; Topic: "Adaptive Neuro-Fuzzy Controller of Passive Nonlinear Systems"

Jane Rael	PhD, Civil Engineering, December 1997; Topic: "Risk Assessment of Depleted Uranium: A case study"
Bill Klein	PhD, Computer Science, September, 1997; Topic: "A Software Architecture for Intelligent Control"
Qingling Yang	PhD, Chemical Engineering, January 1998; Topic: "Development of Needle-Type Biosensors for Intravascular Glucose and Lactate Monitoring"
Raikanta Sahu	PhD, Civil Engineering, March 1998; Topic: An Object-Oriented Framework for Computational Mechanics.
Guoping Wang	PhD, Mechanical Engineering, April 1998; Topic: "A General Design of Bias Force Shape Memory Alloy (BFSMA) Actuators and An Electrically-Controlled SMA Knee and Leg Muscle Exerciser for Paraplegics and Quadriplegics"
Mohammad Akberzadeh	PhD, Electrical Engineering, April 1998; Topic: Fuzzy Logic in Control of Flexible Link Robots
Doug Minnema	PhD, Chemical Engineering; May 1999: Topic, "The Prediction of Pulsed Reactor Kinetic Behavior Based upon Pre-Pulse Parameter Measurements"
Louis Restrepo	PhD, Nuclear Engineering; September 2000: Topic: "Development of Building Wake and Plume Rise Models Using Computational Fluid Dynamics Codes"
Joe Lewis	PhD, Computer Science; June 2001; Topic: AI in Advanced Manufacturing
Rodolfo Tellez	PhD, Chemical Engineering, University of Calgary; May 2005; Fuzzy Control
Girum Urgessa	PhD, Civil Engineering, April 2006, Topic: An algorithm for FRP design
Malika Senevirantha	PhD, Civil Engineering, University of Calgary; Environmental Engrg, 2008
Nicolas Sau	PhD., Civil Engineering, University of New Mexico, Novel Finite Element Methods, 2008
Mo Azerbayejani	PhD, Civil Engineering, University of New Mexico; Optimization for sensor placements, 2009
Jung Kim	PhD, Civil Engineering, University of New Mexico; Structural Health Monitoring, 2009
Roshan Rammahan	PhD, Computer Science, University of New Mexico, Artificial Intelligence, December, 2009
Dylan Harp	PhD, Civil Engineering, University of New Mexico, Uncertainties in aquifer location, August, 2009
Kshanti Greene	PhD, Computer Science, University of New Mexico, May, 2010
Tong Xia	PhD, Civil Engineering, University of New Mexico; June 2010
Donald Lincoln	PhD, Mechanical Engineering, University of New Mexico, December 2010
Mohammed Jalapour	PhD, Civil Engineering, University of New Mexico, expected May 2012

B.11 Dissertation or Thesis/Project Advisor

Name	**Topic**	**Degree**
Fred Carter	Honors Project: Expert Systems in CE	BSCE: Honors 1989
Steve Verzi	PARES: An Expert System for Preliminary Flexible Pavement Rehabilitation	MSCS; May 1990
Aaron Perea	Expert Systems in Dynamics (Failed Qual. Exams in CE twice; withdrew)	PhD Program
Bill Veroski	Fuzzy Set Theory: A Better Approach to Determining Design Loads	MSCE; December 1991
Robert Sharp	Preliminary Development of a Method for Correlating the Hydrogenase Activity of Sulfate Reducing Bacteria to Rates of Microbiological Induced Corrosion	MSCE; December 1991
Sandra Bitsie	Practical Design for Dynamic Rate Effects on Timoshenko Beam Response	MSCE; July 1992
Ashish Vasil	On the Development of an Experimental Procedure to Conduct Dynamic Moire Interferometry	MSCE; July 1992
Steven Geiger	Development of Laboratory Parameters for the use of Environmental SEM in Biocorrosion Studies	MSCE, December 1992
Nadir Vadiee	On a Programmable Fuzzy Logic Array (PFLA) Based on a New Soft Fuzzy Reasoning Paradigm	PhD; December 1995
Amy Regan	Control of Environmental Processes	MSCE; May 1997
Rory Ninneman	Structural Dynamics of Space Structures	MS; May 1997
Ward Deng	An Object-Oriented Approach in Designing an Analytical System of Discrete Methods	PhD; December 1997
Paul Wolfenbarger	Exploration of a New Unstructured Quadrilateral Mesh Generation Algorithm	MS; December 1998
Sudeep Rao	Anti-weathering treatments to Protect Mineral Surfaces: Hybrid Sol-Gel and Biomimetic Strategies"	PhD; April 1998
Ashish Vasil	Dynamic Moire Inteferometry	PhD; August 1998
Jonathon Lucero	A General Logic Methodology for Fault Tree Analysis	MS; May 1999
Amy Stead-Latham	Mechanics of Foam	BS Engrg, 1999 New Mexico Highlands University
Ken Brunetto	Structural Dynamics	MS; May 2000

Terese Gabocy	Fuzzy Ecological Risk Assessment	MSCE, dropped program
Ying Ning	Stochastic Construction Scheduling	MSCE; November 2001
Vicky Watt	Big-I bridge seismic design	MSCE; December 2001
Dave Vasquez	Seismic design of novel metallic staircase	MSCE; December 2001
Sanjay Magal	Novel programming methods in continuum mech.	MSCE; August 2001
Charles Miller	Discrete simulation of rocking blocks	MSCE; August 2001
Rory Ninneman	Passed GQE 1997	PhD program (inactive)
Jerry Parkinson	Fuzzy Control of Chemical Engineering Processes	PhD, EECE, April 2001
Art Etter	Structural engineering	MSCE; May 2002
Gregory Chavez	Possibility theoretical developments	MSCE; May 2002
Sunil Donald	Risk Assessment in Ground Water Studies	PhD; June 2003
Jonathon Lucero	Fuzzy Systems Methods in Structural Engrg	PhD; Feb 2004
Christine Treml	Inferring Validated Models with Model Reference Adaptive Control using Bayesian Belief Networks	PhD, EECE; May 2004
Rhonda Young	A Fuzzy System for Predicting the Natural Period	MSCE; inactive
Tom Nordstrand	Vibration characteristics of Intell Processor	MSCE, inactive
Vijaya Anant	Fuzzy set algorithms	MS, moved to Construction Engrg
Kinnan Kline	Uncertainty quantification in impact dynamics	PhD student; transferred to NMSU
Gregory Chavez	On fusing linguistic and assignment uncertainty in damage assessment of structures	PhD; October 2007
Erik Lund	Civil Engineering	MSCE, May 2008
Clay Phillips	Uncertainty Quantification in Construction Schedules	PhD; May 2009
Ali Yousefi	Total uncertainty – expansion of previous theory	PhD; transferred to another faculty
Alma Rodriguez	Fuzzy agent based modeling	MS; ECE left school
Douglas Austin	Course-only program	MSCE; December 2012
Angela Montoya	Quantification of Margins and Uncertainty	PhD; CE expected 5/2013

B.12 Laboratories Developed

1. *Civil Engineering Micromechanics Laboratory (Tapy Hall 222):* Principal Investigator on an Air Force Office of Scientific Research grant to build the world's first Fast

Scanning Electron Microscope (FSEM). Assisted Prof. M. Wang in building this facility. This facility is used to examine dynamic fracture of materials in the microscopic scale by making movies during the crack process. A patent on this device has recently been approved for issuance (see item C.8). Also Principal Investigator on a National Science Foundation grant to build a dynamic moiré interferometry lab to examine the sub-micron surface fractures of materials undergoing dynamic loads. Assisted Prof. A. Maji in developing this interferometry and holography facility.

2. *Environmental Scanning Electron Microscope Laboratory (Tapy Hall 120)*: Principal Investigator on a Department of Energy grant to establish an ESEM lab to conduct various studies in the waste remediation area including a project in biocorrosion of metallic materials. In charge of laboratory renovation, operation, maintenance, invoicing for services, and for training of new users. The ESEM laboratory is now equipped with the following accessories, which have been acquired since 1991: Kevex x-ray analyzer; 1000ºC hot stage, Peltier cooling stage; backscatter detector; image acquisition and archiving system. The laboratory now has a fully functional workbench, sample preparation area and sink.

3. *Sun Workstation Computer Laboratory (Tapy 123)*: Initiated the purchase, along with Profs. W. Gerstle and M. Wang, of three Sun Sparcstations and two X-window terminals. My grant with the Phillips Laboratory in Object Oriented Programming was the impetus for this new network. Have purchased connectors, wire, and other supplies to equip terminals in two other rooms (Tapy 222 and Tapy 120) with direct connections to the workstations in Tapy 123 and to the main UNM Unix network and Internet. Long term goal is to connect these research workstations to a new undergraduate Unix workstation network.

C. BOOKS, PUBLICATIONS, WRITINGS, AND PATENTS

TOTAL PUBLICATIONS IN PRINT: over 130
TOTAL PATENTS ISSUED: 1
*Names with an asterisk * are student co-authors*

C.1 Books

"Fuzzy Logic with Engineering Applications-3rd Edition, John Wiley & Sons, UK, 2010, ISBN: 978-0-470-74376-8 (authored textbook).

"Fuzzy Logic for Engineering Applications-2nd Edition", John Wiley & Sons, UK, 2004; ISBN 0-470-86074-X (authored textbook).

"Fuzzy Logic and Probability Applications-Bridging the Gap", SIAM Publishers, Philadelphia, PA, (T. Ross, W. Parkinson, and J. Booker, editors), 2002, ISBN 0-89871-525-3.

"Fuzzy Logic for Engineering Applications", Publishing House on Electronics Industry, Beijing, China, 2001; ISBN 7-5053-7043-X (translated into Chinese).

"Fuzzy Logic for Engineering Applications", McGraw-Hill Book Company, 1995; ISBN 0-07-053917-0 (authored textbook).

"Fuzzy Logic and Control: Software and Hardware Applications", Prentice-Hall, Englewood Cliffs, NJ, 1993; ISBN 0-13-334251-4, (Jamshidi, M., Vadiee, N. and Ross, T., editors).

C.2 Refereed Publications

BOOK CHAPTERS

Introduction, Chapter 1, "Fuzzy Logic and Probability Applications", SIAM Publishers, Philadelphia, PA, 2002, (Ross, Parkinson, and Booker, editors) ISBN 0-89871-525-3 (with J. Booker and W. Parkinson).

Fuzzy Set Theory and Fuzzy Logic, Chapter 2, "Fuzzy Logic and Probability Applications", SIAM Publishers, Philadelphia, PA, (Ross, Parkinson, and Booker, editors), 2002 (with J. Parkinson) ISBN 0-89871-525-3.

Considerations for using Fuzzy Set Theory and Probability Theory, Chapter 5, "Fuzzy Logic and Probability Applications", SIAM Publishers, Philadelphia, PA, 2002, (Ross, Parkinson, and Booker, editors) ISBN 0-89871-525-3 (with K. Sellers and J. Booker).

Structural Safety Analysis: A Combined Fuzzy and Probability Approach, Chapter 9, "Fuzzy Logic and Probability Applications", SIAM Publishers, Philadelphia, PA, (Ross, Parkinson, and Booker, editors), 2002, (with J. Lucero*) ISBN 0-89871-525-3.

Aircraft Integrity and Reliability, Chapter 10, "Fuzzy Logic and Probability Applications", SIAM Publishers, Philadelphia, PA, 2002, (Ross, Parkinson, and Booker,

editors) ISBN 0-89871-525-3 (with C. Ferregut, R. Osegueda, Y. Mendoza and V. Kreinovich).

Control Charts for Statistical Process Control, Chapter 12, "Fuzzy Logic and Probability Applications", SIAM Publishers, Philadelphia, PA, 2002, (Ross, Parkinson, and Booker, editors) ISBN 0-89871-525-3 (with W. Parkinson).

Fault Tree Logic Models, Chapter 13, "Fuzzy Logic and Probability Applications", SIAM Publishers, Philadelphia, PA, 2002, (Ross, Parkinson, and Booker, editors), exp. 2001, (with J. Lucero*) ISBN 0-89871-525-3.

Intelligent Control Systems Using Soft Computing Methodologies, Chapter 10, "Introduction to Fuzzy Logic", published by CRC Press, Boca Raton, FL, December 2000, ISBN: 0-8493-1875-0, eds. M. Jamshidi and A. Zilouchian (with M. Jamshidi and A. El-Osery*).

"Membership Functions, Fuzzification and Defuzzification", Chapter 5 in *Fuzzy Systems in Medicine*, P.S. Szczepaniak, P.J.G. Lisboa, J. Kacprzyk (eds.). Physica-Verlag, A Springer-Verlag Company, Heidelberg, New York, 1999; pp: 48-77, ISBN 3-7908-1263-3, 1999.

"Ecological and Human Health Risk Assessment: A Guideline Comparison and Review, Chapter 23 in Environmental Methods Review: Retooling Impact Assessment for the New Century, published by the International Association of Impact Assessment, A. Porter and J. Fittipaldi, eds, The Press Club, Fargo, ND, March 1998, pp. 193-200 (with T. Gabocy).

"Fuzzy Logic", Digital Consumer Electronics Handbook, Chapter 6, McGraw-Hill, New York, NY, R. Jurgen (editor), pp. 6.1-6.40, 1997.

"Set Theory: Classical and Fuzzy Sets", Fuzzy Logic and Control: Software and Hardware Applications, Chapter 2, Prentice-Hall, Englewood Cliffs, NJ, pp. 10-35, 1993.

"Propositional Calculus: Predicate Logic and Fuzzy Logic", Fuzzy Logic and Control: Software and Hardware Applications, Chapter 3, Prentice-Hall, Englewood Cliffs, NJ, pp. 36-50, 1993.

"Approximate Reasoning in Structural Damage Assessment", Expert Systems in Construction and Structural Engineering, Chapter 9, Chapman & Hall Ltd., H. Adeli, ed., 1988, pp. 161-192.

"Fuzzy Sets and Survivability Analysis of Protective Structures," The Analysis of Fuzzy Information, Vol 3, Chapter 3, CRC Press, James Bezdek, ed., 1987, pp. 29-53 (with F. S. Wong and A. C. Boissonnade).

JOURNALS

"Evaluation of Commercial Facility Demand Response Using Genetically Evolved Fuzzy Cognitive Mapping", (2012), Int. J. Distributed Energy Resources, v. 8, no. 4, September, (with Don Lincoln*)

"Reliability Analysis to Resolve Difficulty in Choosing from Alternative Deflection Models of RC Beams, J. Mechanical Systems and Signal Processing, Special Issue: Imprecise Probabilities http://dx.doi.org/10.1016/j.ymssp.2012.06.024 ,(with J.Kim, M. Taha, and H.C. Noh)

"New Developments in Uncertainty Assessment and Uncertainty Management", (2013), J. Expert Systems with Applications, Vol. 40, pp. 964–974 (with J. Booker and A. Montoya).

"An Evolution of Uncertainty Assessment and Quantification" (2011), Scientia Iranica D, 18 (3) pp. 669-676. (with J. Booker)

"Logical Models for Effectivity Trees using Fuzzy Membership Functions and Possibility Distributions", J. Integrated Computer Aided Engineering, (2011), (18), pp. 251-264 (with M. Taha, J. Kim, and F. Gilfeather).

"Establishing Concrete Cracking Strength Interval using Possibility Theory with Application to Predict Possible RC Deflection Interval Engineering Structures", Journal of Engineering Structures, 2010, (32) pp. 3592-3600 (with M. Taha and J. Kim).

"A Robust Genetic-Fuzzy Approach for Modeling Complex Systems with Two Civil Engineering Applications", ASCE Journal of Computing in Civil Engineering, Vol. 23, No. 3, 2009, pp. 193-199. (with D. Harp* and M. Taha).

"An inductive fuzzy damage classification approach for structural health monitoring", Int. J. Materials and Structural Integrity, Vo. 2, No. 3, pp.193–206.
2008 (with M. Azarbayejani and M. Taha).

"A commentary on Complexity Management in Fuzzy Systems (Alexander Gegov), Hardcover Studies in Fuzziness and Soft Computing-Volume 211" (2007) J. Artificial Intelligence, Vol.171 (18), pp. 1114-1115.

"A Possibilitstic Approach for Damage Detection in Structural Health Monitoring", ASCE J. Structural Engineering , (2007) Vol 133 (9), pp. 1247-1256 (with E. Altunok* and M.R. Taha).

"A Fuzzy Rule Based Method to Simulate 2-D Advective-Dispersive-Adsorptive Contaminant Transport from a Continuous Source," (with M. Senevirathna and G.Achari), in review with J. Environmental Modeling and Software.

"Heat Exchanger Network Process Modifications for Controllability using Design Reliability Theory", J. Computers and Chemical Engineering, 2006, Vol. 30 (4), pp. 730-743 (with Rodolfo Tellez, William Svrcek, and Brent Young).

"Engineering Index: An Engineering Certification/Qualification Metric", J. of Military Operations Research, 2006, Vol. 11, No. 2. pp.27-44 (with J. Booker, M. Hamada, B. Reardon, R. Dolin, C. Faust, L. Najera).

"Los Alamos National Laboratory Uncertainty Workshop: An Interval Perspective", Reliable Computing, Vol.12, issue 1, 2006, pp. 65-71 (with V. Kreinovich).

"Control loop noise rejection using fuzzy logic", ISA Transactions, Vol. 44, (2005), pp. 457-464 (with Glen Hay*, William Svrcek, and Brent Young).

"Impact Assessment of an Eco-Industrial Park using Fuzzy Cognitive Mapping", J. Intelligent and Fuzzy Systems, 15(2), 2004, pp. 75-88 (with S. Fons* and G. Achari).

"Review of Dynamics of Structures: Theory and Applications to Earthquake Engineering by Anil S. Chopra", ASCE J. Struct. Engrg., Vol. 128, No. 6, p. 838, June 2002.

"Handbook of Fuzzy Computations-Book Review", J. Pattern Analysis and Applications, Springer-Verlag, London Ltd, vol.4, 2001, p. 77 (with J. Lucero*).

"Fuzzy Sets in Engineering Design and Configuration – A Book Review", Int. J. Adaptive Control and Signal Processing, Vol. 12, pp. 538-540, 1998.

"Environmental Microscopy in Stone Conservation", Scanning, Vol. 18, pp. 508-514, 1996 (with S. Rao* and J. Brinker).

"Biosensors for Monitoring Environmental Wastes", J. Environmentally Conscious Design & Manufacturing. Vol. 4, No. 3-4, 35-40, 1995 (with Barton, L., Tomei, F., Carpenter, C. and Lindemann, W.).

"The role of bacteria in the biocorrosion of metals and in the bioremediation of contaminated water", J. Environmentally Conscious Manufacturing, Vol. 3, No. 3-4, 59-75, 1994 (with L. Barton, S. Rao*, P. Moore*, T. Gallegos*, and H. Adams).

"A Framework-Based Environment for Object-Oriented Scientific Codes", Scientific Programming, Vol. 2, pp. 111-121, 1993 (with R. Ballance, A. Giancola, and G. Luger).

"Environmental Scanning Electron Microscope (ESEM) Evaluation of Crystal and Plaque Formation Associated with Biocorrosion", J. Microscopy Research and Technique, (25), 429-433, 1993 (with S. Geiger*, and Larry Barton).

"Fuzzy Set Methods in Assessing Uncertainty in the Modeling and Control of Space Structures", J. Intelligent and Fuzzy Systems, (1), 2, 135-155, 1993 (with T. Hasselman, J. Chrostowski, S. Verzi*).

"PARES: An Expert System for Preliminary Flexible Pavement Rehabilitation Design", Transportation Research Record No. 1374, National Academy Press, 1993, pp. 81-89, (with S. Verzi*, S. Shuler, G. McKeen, and V. Schaefer).

"Thoughts and Concepts: Object Oriented Programming for Scientific Codes. I", ASCE Journal of Computing, Vol. 6, No. 4, 1992, pp. 480-496 (with L. Wagner* and G. Luger).

"Practical Examples in C++: Object Oriented Programming for Scientific Codes.II", ASCE Journal of Computing, Vol. 6, No. 4, 1992, pp. 497-514 (with L. Wagner* and G. Luger).

"Fracture Study of Quasi-Brittle Material Using a Fast-Scanning Electron Microscope" Experimental Techniques, Vol. 16, No. 1, 1992, pp. 29-36 (with M. L. Wang, Z. L. Tan* and R. J. Macy).

"A Rule Based Fuzzy Logic Deduction Technique for Damage Assessment of Protective Structures", Int. J. Fuzzy Sets and Systems, Vol. 44, No. 3, 1991, pp. 459-468 (with F.C. Hadipriono).

"Assessing Damping Uncertainty in Space Structures with Fuzzy Sets, Shock and Vibration Technology Review , Vol. 1, No. 10, 1991, pp. 3-11, (Feature Article), (with T. K.Hasselman).

"Diffusing-Vortex Numerical Scheme for Solving Incompressible Navier-Stokes Equations", Journal of Computational Physics, Vol. 95, No. 2, 1991, pp. 400-435 (with Z. Lu*).

"Deformation Measurements at a Crack Tip Using a Fast Scanning Electron Microscope", in Fracture Processes in Concrete, Rock and Ceramics, RILEM E&FN SPON Publishers, July 1991, pp. 61-71 (with M. Wang).

"DAPS, An Expert System for Structural Damage Assessment", ASCE Journal of Computing in Civil Engineering, Vol. 4, No. 4, October 1990, pp. 327-348 (with H. C. Sorensen, S. J. Savage*, and J. M. Carson).

"Structural Failure Determination with Fuzzy Sets," Journal of Civil Engineering Systems, Vol. 3, June 1986, pp. 82-92 (with J. C. Bezdek, N. T. Grimball* and J. M. Carson).

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* Indicates student coauthor

"Dynamic Rate Effects on Timoshenko Beam Response," American Society of Mechanical Engineers (ASME), Journal of Applied Mechanics, Vol 52, No. 2, June 1985, pp 439-445.

"Timoshenko Beams with Rotational End Constraints," American Society of Civil Engineers (ASCE), Journal of Engineering Mechanics, Vol 111, No. 3, March 1985, pp 416-430 (with F. S. Wong).

"Impulsive Direct Shear Failure in Reinforced Concrete Slabs," ASCE Journal of Structural Engineering, Vol. 111, No. 8, August 1985, pp 1661-1677 (with H. Krawinkler).

"Numerical Bending Analysis of Arches," ASCE Journal of the Structures Division, April 1982, Vol 108, ST4, pp. 849-868 (with W. J. Austin).

"Elastic Buckling of Arches Under Symmetrical Loading," ASCE Journal of the Structures Division, Vol 102, ST5, May 1976, pp 1085-1095 (with W. J. Austin).

REFEREED PROCEEDINGS, INVITED PAPERS AND KEYNOTE ADDRESS

"New Developments in Uncertainty Assessment and Uncertainty Management", KEYNOTE ADDRESS, Second International Sysmposium on Fuzzy Systems, Ankara, Turkey, Hecettepe University, Nov. 16-18, 2011.

"Non-Specificity Modeling of Concrete Cracking Strength Using Possibility Theory" *Proceedings of 11th International Conference on Applications of Statistics and Probability in Soil and Structural Engineering* (ICASP11) ETH Zurich, Switzerland, August 1-4, 2011 (with J.J. Kim and Mr. R. Taha).

An Approach to Classifying Uncertainties in Construction Schedules, (2009) Proceedings of the 2009 ASCE Construction Research Congress, Seattle, WA, "Building a Sustainable Future", (eds.) S. Ariaratman and E. Rojas, CRC Press, Vol. 2, pp. 876-885 (with C. Phillips* and S. Bogus).

Ross, T. and Taha, M. (2007) "Robustness, Reasoning, Uncertainty and Intelligence in Structural Design: From The Pyramids to Today", KEYNOTE ADDRESS at the 12th International Colloquium on Structural and Geotechnical Engineering, Cairo, EGYPT, December 10-12, published by Ain Shams University, pages KNL001-21 (with M. Taha).

"An inductive reasoning approach for fuzzy damage detection in structures", (2007) 12th International Colloquium on Structural and Geotechnical Engineering, Cairo, EGYPT, December 10-12, published by Ain Shams University, pages MAT027-028 (with Azerbayejani, M.* and Taha, M.)

"Classification of contaminated sites using a fuzzy rule based system", Waste Management 2006, Tucson, AZ (with Francisco Lemos, Gopal Achari and Kevan van Velzen).

"Total Uncertainty in Structural Dynamics Applications", IMAC 2005, Orlando, Fl, Jan 30-Feb 2 (with J. Lucero and K. Hench).

"Examining the Significance of Mortar and Brick Unit Properties on Masonry Bond Strength Using Bayesian Model Screening", Proceedings of the 10th Canadian Masonry Symposium, Shrive et al. Eds., Banff, Canada, June 2005, Vol.1 , pp. 112-122 (with Reda Taha, M. and Lucero, J.)

"Model parameter Updating using Bayesian Networks", Session 2, Model Validation and Uncertainty Quantification, paper 03; 9th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, July 26-28, (2004) Albuquerque, NM (CD ROM and proceedings, p. 99). (with C. Treml*)

"Quantifying Total Uncertainty using Different Mathematical Theories in a Validation Assessment", Session 2, Model Validation and Uncertainty Quantification, paper 04; 9th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, July 26-28, 2004, Albuquerque, NM (CD ROM and proceedings, p. 99) (with J. Booker, Hemez, F., Anderson, M., Reardon, B. and Joslyn, C.)

"An Engineering Perspective on Uncertainty Quantification for Qualification and Validation," National Institute of Aerospace and NASA Langley Research Center, Langley, VA, October 5-6, 2004 (with J. M. Booker, M. C. Anderson, F. M. Hemez, C. A. Joslyn, B. J. Reardon, and A. C. Rutherford).

"A Fuzzy-Aided Wavelet Damage Recognition For Intelligent Structural Health Monitoring" Proceedings of the 2nd European Workshop on Structural Health Monitoring, Boller and Staszewski (eds), DEStech Publications, pp. 669-676; Munich, Germany, July 7-9, 2004 (with M. Reda Taha, A. Noureldin).

"Certification and Qualification"(with J. Booker and others), 72nd MORSS, Monterey, CA, June 2003,

"An Enhanced Reliability Index for Assessing Margin of Safety in Structures", IFIP WP7.5 Conference on Reliability and Optimization in Structural Systems, Banff, Canada, November 2-5, 2003, A. A. Balkema Publishers, Netherlands, pp. 291-298 (ISBN: 90-5809-579-7).

"Rocking Rigid Blocks Simulation using Fuzzy Systems Theory with Rule Reduction", NAFIPS Conference, Chicago, IL, July 2003 (with J. Lucero*).

"Analyses of the Environmental Impacts of an Eco-Industrial Park using Fuzzy Cognitive Maps", IEEE Int. Conf on Industrial Informatics, Banff, Canada, August 2003 (with S. Fons* and G. Achari).

"Fuzzy Set Theory Applied to Measurement Data for Exposure Control in Beryllium Part Manufacturing, , 6th Int. Conf. Engrg Design and Automation, Maui, Hawaii, August 4-7, 2002, Paper #35, pp. 130-136, ITS, Inc. Prospect, KY (with W. Parkinson, S. Abeln, K. Creek, F. Mortensen, P. Wantuck, and M. Jamshidi).

"A Fuzzy Feed-Forward/Feedback Control System for a Three-Phase Oil Field Centrifuge, 6th Int. Conf. Engrg Design and Automation, Maui, Hawaii, August 4-7, 2002, Paper #36, pp. 137-142, ITS, Inc. Prospect, KY (with W. Parkinson, R. Smith, F. Mortensen, P. Wantuck, T. Ross, M. Jamshidi and N. Miller).

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C.3 Non-reviewed Conference Papers/Presentations since 1987

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"Inference Uncertainty Quantification Instead of Full-scale Testing," Proceedings, 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference and 10th Non-Deterministic Approaches Conference, Schaumburg, Illinois, April 7-10, 2008, LA-UR-08-1669, LA-UR-08-2213 (Langenbrunner, J.R., Booker, J.M., and Hemez, F.M.).

"The Quantification of Inference Uncertainty in the Absence of Physical Tests," LANL Risk Symposium, Santa Fe, N.M., March 11-13, 2008, LA-UR-08-1705 (with Ross, T.J., Booker, J.M., Langenbrunner, J.R., and Hemez, F.M).

Langenbrunner, J.R, Booker, J.M., Hemez, F.M., Ross, T.J., "An Uncertainty Inventory Demonstration—A Primary Step in Uncertainty Quantification," Abstract, Submitted to 11th AIAA Non-Deterministic Approaches Conference, Palm Springs, CA, LA-UR-08-05161.

"The Quantification of Inference Uncertainty in the Absence of Physical Tests T. Ross", Los Alamos National Laboratory Risk Symposium, Santa Fe, NM March 10-12 2008 (with J. Booker, J. Langenbruner, and F. Hemez)

"Locating Leaks in Pressurized Environmental Containments: Shockwave Sensing Using Dynamic Sensor Nets", 6th Int. Conf. Intell. Technologies, InTech05, Phuket, Thailand, Dec, 2005 (with J. Fronczek, R. Prasad, B. Rocks, T. Lu, A. Thakoor).

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"FSEM and ESEM: Fast and Wet Electron Microscopy", Proc. 14th Symposium Ideas in Science and Electronics, *(Invited Paper)* May 12-14, 1992, Albuquerque, NM, pp. 87-91.

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"FSEM: Fast Scanning Electron Microscopy", Poster #11-31, Advances in SEM Instrumentation, Proceedings XIIth International Congress for Electron Microscopy, Seattle, WA, August 1990, Vol. I, Imaging Sciences, San Francisco Press, Inc., pp. 607-608 (B. Fishbine and B. Macy, co-authors of abstract).

"An Expert System for Preliminary Pavement Rehabilitation (PARES)", Proceedings of the 27th New Mexico Paving and Transportation Conference, January 1990, pp. 121-128, *(Invited Paper)*.

"Stochastic Methods in Protective Structures Design", Fourth International Symposium on Interaction of Non-Nuclear Munitions with Structures, Panama City Beach, Florida, April 17-21, 1989, pp. 208-213 (with S. Kung).

"Expert Systems for Pavement Design and Rehabilitation", Proceedings of 25th New Mexico Paving and Transportation Conference, January 1988, pp. 207-209, *(Invited Paper)*.

"Fuzzy Logic Expert System for Damage Assessment of Protective Structures", Proceedings NAFIPS-88 Conference, San Francisco, June 1988, pp.76-80 (with F. C. Hadipriono).

"Fuzzy Production Rules for a Damage Assessment Expert System", International Symposium on Fuzzy Systems and Knowledge Engineering, Guangzhou, China, July 1987, Vol. 1, pp. 249-256 (with F. C. Hadipriono).

"Towards a Rule-Based Expert System for Damage Assessment of Protective Structures", Second Congress of the International Fuzzy Systems Association, Tokyo, Japan, July 1987, Vol. 1, pp. 156-159 (with F. C. Hadipriono).

"Finite Elements for Structural Analysis", SPOCADE III, A National CAD/CAE/CIM Conference and Exposition, Coeur d' Alene, Idaho, August 9-11, 1987 (*Invited Presentation*).

*** Nine (9) conference papers written prior to 1987 (see Section G)**

C.4 Research Reports since 1987

The following group of reports (LA-UR, Los Alamos Unclassified Report) since the year 2003 were all written in collaboration between me and the following Los Alamos National Laboratory personnel:

James Langenbruner,
Jane Booker
Francois Hemez

and other researchers when noted.

(2011) LA-UR-11-03520; INFORMATION INTEGRATION AND RETRIEVAL FOR INFERENCE AND UNCERTAINTY MANAGEMENT ABSTRACT; *PSAM 11, ESREL 2012, Helsinki, Finland, June 25-29, 2012* (and Hany Abdel-Khalik, North Carolina State University).

(2011) LA-UR-11-04609; "Inferring Verification & Validation without Full-scale Testing" submitted to Special Session, Uncertainty Quantification in Verification and Validation, 14th Non-Deterministic Approaches Conference, 53rd AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, AIAA-MSDM, April 23-26,2012, Honolulu, Hawai'

(2011) LA-UR-11-04498; ROLES FOR ELICITATION IN PHYSICS INFORMATION INTEGRATION: AN EXPERT'S PERSPECTIVE; DIMACS: *The Science of Expert Opinion* abstract for Workshop.

(2011) LA-UR-11-02975, VARIABILITY AND ROBUSTNESS IN DETONATING RATE STICKS OF INSENSITIVE HIGH EXPLOSIVE PBX 9502; 30th Society for Experimental Mechanics International Modal Analysis Conference (IMAC), Special Session on Robustness, Jacksonville, Florida, USA, January 20-February 2, 2012 (with Larry E. Hatler, WX-8, Angela Montoya, W-14, and Donald Quintana, W-14, Los Alamos National Laboratory).

(2011) LA-UR-11-03670; "Robust Statistical Models to Reduce Variability of Detonation Speed Measured Using Rate Sticks of Insensitive High Explosive PBX 9502—First Analysis," LOS ALAMOS NATIONAL LABORATORY Technical Report, June 22, 2011.

(2010) LA-UR-10-07004; Model Choice Considerations and Information Integration using Analytical Hierarchy Process; RESS special session, Proceedings of the Sixth International Conference on Sensitivity Analysis of Model Output, Milan, Italy 19-22 July.

(2010) LA-UR-10-1494; *"Evolving Desiderata for Validating Engineered-Physics Systems Without Full-scale Testing"* AIAA, CD Proceedings 12th Non-Deterministic Approaches Conference, Orlando, FL, April 12-15.

(2010) LA-UR-10-06651; "Estimating Uncertainty of Inference for Validation" LOS ALAMOS NATIONAL LABORATORY Technical Report.

(2010) LA-UR-10-04523; Inference Uncertainty—A New Approach to Validation; PSAAP Workshop, The University of Texas, Austin (with Mark C. Anderson, LANL), July 8.

(2010) LA-UR-10-04032; "Report on Finding Least Square Fits for Inertial Confinement Fusion Data with Varied Deuterium-Tritium Fuel Ratios", June.

(2010) LA-UR-10-00398, Model Choice Considerations and Information Integration Using Analytical Hierarchy Process SAMO10, 6th International Conference on Sensitivity Analysis of Model Output (SAMO-2010), July 19-22, 2010, Milan, Italy

(2010) LA-UR-10-01494, EVOLVING DESIDERATA FOR VALIDATING ENGINEERED-PHYSICS SYSTEMS WITHOUT FULL-SCALE TESTING; Special session on V&V, 12th AIAA Non-Deterministic Approaches (NDA) Conference, Orlando, FL, April 12-15, 2010.

(2009) LA-UR-09-1969 AN UNCERTAINTY INVENTORY DEMONSTRATION—A PRIMARY STEP IN UNCERTAINTY QUANTIFICATION; AIAA 09, 50th AIAA/ASME/ ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference and 11th AIAA Non-Deterministic Approaches (NDA) Conference, Palm Springs, CA, May 4-7, 2009 (with Isaac F. Salazar).

(2009) LA-UR-09-05105; USING THE ENGINEERING INDEX FOR MEETING QUALIFICATION REQUIREMENTS, (with D. L. Quintana).

(2009) LA-UR-09-05104 and LA-UR-10-02167, EVOLVING DESIDERATA FOR VALIDATING ENGINEERED-PHYSICS SYSTEMS WITHOUT FULL-SCALE TESTING 12th AIAA Non-Deterministic Approaches (NDA) Conference, Orlando, FL, April 12-15, 2010 (with D. Quintana).

(2008) LA-UR-08-5161; AN UNCERTAINTY INVENTORY DEMONSTRATION—A PRIMARY STEP IN UNCERTAINTY QUANTIFICATION 11th AIAA Non-Deterministic Approaches (NDA) Conference, Palm Springs, CA, May 4-7, 2009.

(2008) LA-UR-08-1669 INFERENCE UNCERTAINTY QUANTIFICATION INSTEAD OF FULL-SCALE TESTING; 49th AIAA/ASME/ ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference and 10th AIAA Non-Deterministic Approaches Conference, Schaumburg, Illinois, April 7-10, 2008.

(2008) LA-UR-08-1705; THE QUANTIFICATION OF INFERENCE UNCERTAINTY IN THE ABSENCE OF PHYSICAL TESTS; LANL Risk Symposium, Santa Fe, NM March 11-13, 2008

(2004) LA-UR-04-6670; "An Engineering Perspective on UQ for Validation, Reliability, and Certification," Foundations 04 Workshop on V&V, Tempe, AZ, October 13-15, 2004, (with A. Rutherford, B. Reardon, M. Anderson, C. Joslyn, and S. Doebling).

(2004) LA-UR-04-3408 ; "Quantifying Total Uncertainty for Weapons Engineering Certification at Los Alamos," 3rd Annual Risk & Reliability Workshop, Vanderbilt University, Nashville, TN, May 17-18, 2004 (with B. Reardon).

(2004) LA-UR-03-9130; "Making Sense of QMU, Reliability, Certification: An Engineering Perspective", Ninth ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability (PMC 2004) July 26-28, 2004, Albuquerque, New Mexico. (with M. Anderson, B. Reardon and C. Joslyn).

(2003) LA-UR-03-9130; "Making Sense of QMU, Reliability, Certification: An Engineering Perspective", Los Alamos Internal QMU Workshop, Los Alamos, NM, December 8-9, 2003 (with M. Anderson, B. Reardon, and C. Joslyn)

(2003) LA-UR-03-7512; "Quantifying Total Uncertainty in Validation Assessment Using Different Mathematical Theories," 14th Biennial Nuclear Explosives Design Physics Conference (NEDPC 2003), Los Alamos, NM, October 20-24, 2003, (with M. Anderson, B. Reardon, and C. Joslyn).

(2003) LA-UR-03-4328 and 03-7639, "Quantifying Total Uncertainty and Performance Margin in Assessing the Reliability of Manufactured Systems", Fifth Biennial Tri-Laboratory Engineering Conference, Santa Fe, NM, October 21-23, 2003, (with M. Anderson, C. Joslyn and K. Sentz).

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"Promotion of Sustainable Development Options in the Ranking of Waste Site Remediation Alternatives", final report submitted to Army Environmental Policy Institute, Georgia Institute of Technology, Atlanta, GA, August 1994 (with H. Jenkins-Smith, P. Reinke).

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"Fast Scanning Environmental SEM for Use in Waste Studies", Technical Report WERC 91-50, New Mexico Waste-Management Education and Research Consortium, U. S. Department of Energy, Las Cruces, New Mexico, February 1992 (with L. Barton and J. LaPointe).

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"Development of a Dynamic Eulerian Finite Element Code for Transient Analysis: DELTA2D and DELTA3D", Report to the Defense Nuclear Agency, Contract DNA001-87-C-0222, 15 June 1988 (with S. Kung and Z. Lu).

"Stochastic Methods in Protective Structure Design: An Integrated Approach", Report to the Air Force Engineering and Services Center, Contract F08635-87-C-0371, 21 April 1988 (with S. Kung and F. Wong).

"Development of a High-Imaging Speed Scanning Electron Microscope for Dynamically Loaded Materials", Report to the Air Force Office of Scientific Research, Contract F49620-87-C-0082, 8 February 1988 (with M. Wang, B. Fishbine, and I. Mackinnon).

"Frame-to-Frame Coherence Approach to Efficient 3-D Animation", Report to the U. S. Army Waterways Experiment Station, Contract DACA39-87-C-0025, 13 November 1987 (with S. Y. Kung).

"Development of a Rule-Based Structural Damage Assessment Code", Air Force Weapons Lab Report, AFWL-TR-87-19, 1987 (with S. Savage, H. Sorensen, J. Carson and B. Satterthwaite).

*** Thirteen (13) research reports written prior to 1987 (see Section G)**

C.5 Thesis and Dissertation

"Direct Shear Failure in Reinforced Concrete Beams Under Impulsive Loading," Ph.D. Dissertation, Stanford University, July 1983.

"Numerical Large Deflection Bending and Buckling Analysis of Arches," MS Thesis, Rice University, April 1973.

C.6 Non-Technical Writings

"Improve Economy By Improving University", Editorial to Albuquerque Journal, 16 Mar 1987, p. A4.

C.7 Patents

5,254,857; Fast Scanning Electron Microscope (FSEM), October 19, 1993
(inventors: T. Ross, M. Wang, I. Mackinnon).

D. RESEARCH FUNDING AND COMPENSATION TO THE DEPARTMENT

TOTAL FUNDED RESEARCH AT UNM (since 1987): over $10.3 million expenditures

FORTY-FOUR (44) GRANTS/CONTRACTS (31 as PI, 13 as Co-PI)
- Department of Homeland Security (2)
- Homeland Security Institute (1)
- Defense Threat Reduction Agency (4)
- Los Alamos National Laboratory (2)
- National Science Foundation (7)
- Department of Energy (1)
- DOE/Waste Education Research Consortium (3)
- Air Force Office of Scientific Research (1)
- NASA Jet Propulsion Lab (2)
- NASA Headquarters (2)
- NASA Marshall (1)
- Air Force Phillips Laboratory (3)
- New Mexico State Highway and Transportation Department (2)
- U.S. Army Environmental Policy Institute (4)
- Arizona State University (1)
- The Upjohn Company (1)
- Sandia National Laboratory (4)
- University of New Mexico (1)
- Others (2)

D.1 Research Proposals Currently in Review

D.2 Funded Research

Principal Investigator, "Uncertainty Quantification using Inference Uncertainty", $336, 893, May 2010 to December 2012, Los Alamos National Laboratory.

Principal Investigator, "Inference Uncertainty", $300,000, July 2008-July 2011, Defense Treat Reduction Agency, Basic Research 6.1 Program.

Co-Principal Investigator, "Emotive Cognitive Agents", July 2008-July 2011, Defense Threat Reduction Agency, Basic Research 6.1 Program (PI: Tom Caudell).

Co-Principal Investigator, "Decision Support System-Phase I", $450,000, October 1, 2007 to April 30, 2010; Department of Homeland Security (PI: Frank Gilfeather).

Co-Principal Investigatory, "Risk Assessment Intelligent Decision Support System (RAIDS), $650,000, 2008-2010, Defense Threat Reduction Agency (PI: Frank Gilfeather).

Principal Investigator, "Assessment of DHS Needs in Research", Homeland Security Institute, December 2005-December 2006; $40,000

Principle Investigator, "Uncertainty Analysis using GIT Theories", Los Alamos National Laboratory, November 1, 2004 to October 30, 2006; $201,000.

Co-Principal Investigator, "Decision Sciences Project", Defense Threat Reduction Agency, Washington, DC, October 2004,to March 2007: $2,200,000 (PI: Frank Gilfeather) T. Ross portion is $305,000.

Co-Principal Investigator, "Analysis of Surface Vibrations resulting from Machinery in Buildings", 3-40341, Sandia National Laboratories, $134,207 (PI: Walter Gerstle).

Principal Investigator, "A Study of Rocking Rigid Blocks", NASA Marshall; $48,000, July 31, 2002-2004.

Principal Investigator, "Safety Assessments for the Canadian National Railroad System: A New Hybrid Approach", Fulbright Foundation Scholar for sabbatical leave, academic year 2001-2002; $15,000, July 31, 2000.

"NASA Group 2 University Research Center-Second Five Years", submitted to National Aeronautics and Space Administration, CNT-2000-OEOP-URC2, $5,000,000, February 13, 2000 (co-Principal Investigator with P. Dorato).

Los Alamos Faculty Affiliate, "Possibility Theory in Computational Mechanics", Los Alamos National Laboratory, May 1999-present; consultant basis.

Principal Investigator, "A Biologically Inspired Materials Route to the Protection of Building Stone Surfaces" University of New Mexico, Research Allocations Committee-Large Grant Program, #98-L-22, $7,300, 1998-99.

Principal Investigator, "Fuzzy Fault and Event Trees" Sandia National Labs, consulting projects AN-6095 and AR-9602 $45,000, 1995-97.

Principal Investigator, "ESEM Services (AS-8591)", Sandia National Labs $2,000, June 1996.

"A Center for Autonomous Control Engineering", National Aeronautics and Space Administration, Office of Equal Employment Opportunity, through North Carolina A&T University; $6.3 million, July 1995 to July 2000 (co-investigator with Mo Jamshidi, and 3 others).

Principal Investigator: "Risk Cost Policy Options", US Army Environmental Policy Institute, UNM Project No. 3-30083, $48,529, August 1996 to August 1997; UNM Project No. 3-30082, $41,626, August 1995 to August 1996, and UNM Project No. 3-30081, $45,575, May 1994 to August 1995.

Principle Investigator: "Fuzzy Logic Grant", The Upjohn Company, UNM Project No. 9-11064, $10,500, September 1994 to September 1997.

Principal Investigator: "Ecological Risk Assessment", US Army Environmental Policy Institute, UNM Project No. 3-40522, $45,000, June 1994 to August 1995.

Principal Investigator: "Development of Biosensors for Monitoring Environmental Waste Systems", Department of Energy/Waste Management Education and Research Consortium, UNM Proposal No. 110/393, Feb. 1994 to Feb. 1995; $58,000.

"Research Experiences for Undergraduates", National Science Foundation, UNM Proposal No. 110/392, $136,934; May 1, 1994 to October 31, 1997; NSF Grant No. EID-9322063; Co-Principal Investigator with W. Gerstle.

Principal Investigator: "Develop Options to Promote Sustainable Development by Prioritizing Remediation", US Army Environmental Policy Institute, UNM Project No. 3-29531, $42, 841, July 1993 to July 1994, (with Hank Jenkins-Smith, UNM Public Policy Institute).

Principal Investigator: "Undergraduate Research Experience", Coalition to Increase Minority Degrees, Arizona State University (NSF Support), Project No. F93UR025, $2,559, Fall Semester, 1993.

"Research Experiences for Undergraduates", National Science Foundation, UNM Proposal No. 110/368, $39,923; May 1, 1993 to October 31, 1994; NSF Grant No. EID-9200117; Co-Principal Investigator with W. Gerstle.

Principal Investigator: "Environmental Risk/Cost Policy Modeling", U.S. Army Environmental Policy Institute, UNM Proposal No. 110/284J; $88,824, January 19, 1993 to July 18, 1994.

Principal Investigator: "Biocorrosion and Flocculation Measurements in Waste Systems", Department of Energy/Waste Management Education and Research Consortium, UNM Proposal No. 110/366; $70,000.February 20, 1993 to February 19, 1994.

"Modeling and Intelligent Control Techniques for Space Structures: Fuzzy Logic and Neural Networks", NASA Jet Propulsion Lab, UNM Proposal No. 113/632, $44,300; February 1993 to February 1994, Co-Principal Investigator with M. Jamshidi, D. Petersen, and C. Abdullah, Electrical Engineering.

Principal Investigator: "Engineering Research Equipment Grant: A New LaB_6 Electron Source for an Environmental SEM for Bioengineering Research", National Science Foundation, UNM Proposal No. 110/350A, $15,900; July 15, 1992 to December 31, 1994; NSF Grant No. BCS-9212505.

Principal Investigator: "Research Experiences for Undergraduates", National Science Foundation, UNM Proposal No. 110/334, $39,923; May 1, 1992 to October 31, 1993; NSF Grant No. EID-9200117.

Principal Investigator: "Biocorrosion and Flocculation Measurements in Waste Systems", Department of Energy/Waste Management Education and Research Consortium, UNM Proposal No. 110/325, $65,000; February 20, 1992 to February 19, 1993.

Principal Investigator: "Investigation of Intermediate Diaphragm Loads on Steel Bridges"; New Mexico State Highway and Transportation Department Contract No., C-01695, UNM Proposal No. 110/308, $29,993; August 7, 1991 to July 31, 1993.

Principal Investigator: "A New Environmental SEM for Research in Waste Studies", PI, $295,300, Department of Energy, University Research Instrumentation Program, August 1, 1991, UNM Proposal No. 110/303; DOE Grant No. 9102-085.

Co-Principal Investigator with Drs. Robert Ballance and George Luger, Computer Science, "Object-Oriented Programming in C++ on the Cray for Scientific Codes", $396,218 ($100,743 subcontract to UNM), Air Force Phillips Laboratory, Small Business Innovation Research Program, July 16, 1991.

Principal Investigator: "Research Experiences for Undergraduates", National Science Foundation, UNM Proposal No. 110/263A, $38,555; June 1, 1991 to November 30, 1992; NSF Grant No. EID-9100822.

Principal Investigator: "A Fast Scanning Environmental SEM for Use in Waste Studies", Department of Energy/Waste Management Education and Research Consortium, UNM Proposal No. 110/291, $88,060; February 20, 1991 to February 19, 1992.

Principal Investigator: "Dynamic Fracture in Quasi-Brittle Materials: An Experimental Study", National Science Foundation, UNM Proposal No. 110/251A, $60,200; June 15, 1990 to November 30, 1992; NSF Grant No. MSS-8918121.

Principal Investigator: "Engineering Research Equipment Grant: Dynamic Fracture in Quasi-Brittle Materials", National Science Foundation, UNM Proposal No. 110/273A, $70,000; May 15, 1990 to October 31, 1992; NSF Grant No. MSS-9007279.

Co-Principal Investigator with Dr. George Luger, Computer Science, "Object-Oriented Programming in C++ on the Cray for Scientific Codes", $48,000 ($5,000 subcontract to UNM), Air Force Phillips Laboratory, Small Business Innovation Research Program, Contract F29601-90-C-0046, May 22, 1990 to Dec. 22, 1990.

Principal Investigator: "Research Experiences for Undergraduates", National Science Foundation, UNM Proposal No. 110/263, $35,132; May 1, 1990 to October 31, 1991; NSF Grant No. EID-9000744.

Principal Investigator: "Methods for Evaluating the Predictive Accuracy of Structural Dynamics Models, subcontract to Engineering Mechanics Associates, Inc. on NASA/JPL Contract NAS7-1064, UNM Proposal No. 110/258, $53,760; March 5, 1990 to July 12, 1991.

Principal Investigator: "An Integrated System for Flexible Pavement Design-Phase I"; New Mexico State Highway and Transportation Department contract No., C-01283, UNM Proposal No. 110/229, $73,500; September 14, 1988 to 28 February 1990.

Principal Investigator: "Analysis of Special Structures Test Methods, Phase III", Air Force Weapons Laboratory Subtask through NMERI, Subtask 4.06/00, $124,561; October 1, 1989 to September 30, 1990.

Principal Investigator: "Development of a High Imaging-Speed Scanning Electron Microscope for Dynamically Loaded Materials", Air Force Office of Scientific Research, SBIR subcontract through IntelliSys Corporation, F49620-89-C-0013, $394,889 ($166,000 to UNM).

*** Total Funding Prior to UNM: $1,239,119 (11 grants; 6 as PI and 5 as Co-PI)**
(see Section G for details)

D.3 Research Proposals Declined

Principle Investigator, "Exploration of Bamboo as a Green Building Material", Environmental Protection Agency, $15,000; 2010.

Principal Investigator, "Inference Uncertainty Quantification for Physical Systems Modeling", $1,068, 044, 3 years, Department of Energy, Office of Science, 2010.

Co-Principal Investigator, "Individual Based Model of Social Behavior", $300,000, 2 years, National Institutes of Health (collaborator with the Pacific Northwest National Laboratory), 2009.

Co-PI, "An Intelligent Damage detection Module for Structural Health Monitoring" submitted to the National Science Foundation, December 1, 2003; amount $536,821.

Principal Investigator, "Validation of Physical Processes for Human Space Exploration using New Possibility Distribution Procedures", proposal to the NASA Johnson Space Center, UNM Proposal #297/009; $180,660, February, 2, 2001.

"Integrated Pest Management System, subcontract proposal to NMSU, Ram Prasad, PI, US Department of Agriculture, UNM Proposal Number 297/006, ACE Center, May 22, 2000, $170,996.

"Hybrid Uncertainty Representations for Assessing Technical Systems", submitted to Los Alamos National Laboratory under the LDRD-ED Program, $740,000. April 3, 2000 (co-investigator with C. Joslyn, S. Eisenhawer, and T. Bott).

Principal Investigator, "Hybrid Materials for the Protection of Building Surfaces", National Science Foundation, CMS-9877201, $243,950, October 1998.

Co-Principal Investigator, "High Performance Concrete Evaluation and Instrumentation of a Bridge over the Rio Puerco", submitted to the New Mexico State Highway and Transportation Department, $50,000, December 1997.

"Chlorinated Compounds and Policy Issues in the Disposal of Municipal Solid Wastes", National Science Foundation, $751,764, May 3, 1996, (co-PI in the area of risk assessment with F. Tomei and one other), UNM Proposal No. 113/754.

"Risk Assessment using Monte Carlo Methods", submitted to WERC/DOE, $70,000, March 31, 1996, UNM Project No. 110/457 (Principal Investigator).

Co-Principal Investigator with F. Tomei: "Support for an Environmental Engineering Research Program: Equipment Grant", National Science Foundation, $1.5 million, March 1, 1995, UNM Proposal No. 110/430 (six other collaborators).

"Materials Research Science and Engineering Center", submitted to National Science Foundation, UNM Proposal No. 235/317, October 5, 1993; $8.4 million (co-investigator with M. Osinski and several others in CHTM).

"Cognitive Systems Approaches with Neuro-fuzzy Architectures in Modeling, Identification, and Control of Dynamic Structures", submitted to National Science Foundation, October, 1993; UNM Proposal No. 113/649, Co-Principal Investigator with Mohammad Jamshidi and Nader Vadiee, $278,240.

Principal Investigator: "University-Based Commercialization Program", submitted to Advanced Research Projects Agency, UNM Proposal No. 110/388, July 21, 1993, $319,862.

Principal Investigator: "Modular Housing Units", submitted to McMann Architectural Services, Santa Ana, CA, UNM Proposal No. 110/387, July 9, 1993, $33,288.

Principal Investigator: "Prediction and Nondestructive Evaluation of Corrosion Damage in Metallic Materials", Air Force Office of Scientific Research, January 12, 1993, UNM Proposal No. 110/376; $674,359.

Principal Investigator: "Damage Nucleation of Aerospace Materials from Corrosion and Fatigue", Air Force Office of Scientific Research, UNM Proposal No. 110/360, AFOSR Control No. 92-NC-321, submitted July 7, 1992; $2,226,244.

"Imaging Living Cells by Fast/Wet Electron Microscopy", $51, 093, submitted to the National Institutes of Health, September 30, 1991; UNM Proposal No. 105/745, (Co-Principal Investigator with Dr. Larry Barton, Biology).

"An Environmental SEM for Studies in Biocorrosion", $48,300, submitted to the National Science Foundation, Engineering Research Equipment Grants, January 31, 1991; UNM Proposal No. 110/306 (Principal Investigator).

"Testing and Evaluation of Composites for Transportation Packaging", $49,893, submitted to the Department of Energy, Environmental Restoration and Waste Management, Young Faculty Award Program, June 15, 1990; UNM Proposal No. 110/289 (Principal Investigator).

"An Automated Route Planner for the Transportation of Hazardous Wastes", $73,579, submitted to DOE Waste Education and Research Consortium, UNMProposal No. 179/86A, January 4, 1990 (Co-Principal Investigator with Prof. Luger, Computer Science).

"Microstructural Characterization of Quasi-Brittle Materials Under Dynamic Loads", $300,230, submitted to FY 90 University Research Initiative, Air Force Office of Scientific Research, UNM Proposal No. 110/259, September 12, 1989 (Principal Investigator).

"New Course in Knowledge-Based Systems in Civil Engineering", $9,485, UNM Foundation Inc., February 27, 1989 (Principal Investigator).

"Center for Interfacial Micromechanical Behavior", $2,155,344, submitted to the University Research Initiative Program, Air Force Office of Scientific Research, UNM Proposal No. 128/329, April 12, 1989 (Co-Principal Investigator with Prof. Schreyer, Mechanical Engineering).

"Expert System for Concrete Mix Design", $213,095, submitted to the Federal Highway Administration, Solicitation DTFH 61-87-R-00111, UNM Proposal No. 144/348, September 16, 1987 (Co-Principal Investigator with Gordon McKeen, NMERI).

"Shock Induced Failure in Cementitious Solids", $314,722, submitted to Air Force Office of Scientific Research, UNM Proposal No. 110/196, March 19, 1987 (Principal Investigator).

D.4 Release Time Compensation Provided to Department

Period	Account Number	Amount	Type
Spr 1988	NMERI	961.60	Release
Fall 1988	8-00406-1100	5,326.07	Release
Spr 1989	8-00406-1100	4,139.15	Release
Spr 1989	1-01620-1100	10,500.00	50% Leave

Spr 1990	8-00406-1100	4,010.64	Release
Fall 1990	1-18522-0790	3,000.00	SBIR Funds
Fall 1990	1-18522-0770	2,000.00	SBIR Funds
Spr 1992	3-23541-1100	2,009.68	Release
Fall 1992	3-25001-1100	3,200.00	Release
Spr 1993	1-18522-3100	14,867.40	ITV Fuzzy Logic
Spr 1994	3-64891-1100	7,000.00	Minority Advising
Fall 1995	3-30082-1100	8,000.00	Army IPA
Spr 1996	3-30082-1100	8,000.00	Army IPA
Fall 1996	3-30082-1100	8,500.00	Army IPA
Spr 1997	3-30082-1100	8,000.00	Army IPA
Spr 2000	3-49561-5100	9,452.00	NASA
Spr 2000	3-49561-5100	9,787.50	NASA
Fall 2000	3-49561-5100	9,400.00	NASA
Spr 2001	3-49561-5100	9,780.00	NASA
Fall 2004		9,000.00	LANL
Spring 2005		32,000	LANL
Fall 2005		11,000	HSI
Spring 2006		10,000	HSI
Spring 2009		12,797	DHS
Spring 2011	(Faculty Senate)	2,000	UNM
Fall-Spring 2011	(Faculty Senate)	7,000	UNM
Fall 2012	(Faculty Senate)	7,000	UNM
		TOTAL $206,550	

E. INTERNATIONAL, NATIONAL, UNIVERSITY, CIVIC ACTIVITIES

E.1 International or National Editorships

Editor-in-Chief, Journal of Intelligent and Fuzzy Systems, IOS Press, Amsterdam, Netherlands 1993-2004.

E.2.1 Citations in National or Regional Publications

1. Televised interviews on new Environmental SEM facility broadcast on ABC (February 4, 1992) and NBC (February 12, 1992) New Mexico affiliate TV.
2. Research in expert systems cited in ASCE Magazine, "Expert Systems: Ready to Hit the Road", June 1992, pp. 71-74.
3. New Environmental SEM lab cited in New Mexico Quantum Magazine, 1992.
4. IEEE Spectrum , suggested texts in fuzzy logic, February 1996, page 62

E.2.2 Total Citations to Date (3422)

E.3 National Committees

1. Chairman, Environmental Systems Management, National Technological University Faculty Planning Committee: (1992-2003)
2. ASCE Information Technology Committee; Control Group Member, 1998-00
3. ASCE AI/ES Education subcommittee; Chairman 1996-99
4. ASCE Database Committee; Member
5. ASCE Aerospace Structures and Materials Committee: Member
6. Transportation Research Board, Subcommittee on Fuzzy Logic Applications in Transportation Problems, Committee on Expert Systems (A5008): 1994-98
7. Publications Committee, ASCE Journal of Aerospace Engineering, 1991-96

E.4 International or National Professional Activities

1. American Assoc. Artificial Intelligence; Member 1986-1990
2. American Society for Engineering Education; 1990 to present
3. International Fuzzy Systems Association; Member 1990 to present
4. Referee for International Journal of Approximate Reasoning; 1986
5. Referee for ASCE Journal of Engineering Mechanics; 1987
6. Reviewer for AFOSR Research Proposals; 1983-1987
7. Research Advisor to AFOSR National Centers of Excellence; 1986-1987
8. Referee for ASCE Journal of Computing and ASCE Monograph Series; current
9. Reviewer for Paper Awards for ASCE Journal of Computing; current
10. Referee for Journal of AI for Engineering Design, Analysis and Manufacturing; current
11. Session Chairman: ASCE Space '90; Albuquerque, NM, 23-26 April 1990; Session: "Structures and Structural Response" and Judge: Poster Session
12. Panel Reviewer for National Science Foundation, Undergraduate Instrumentation Program, (see attached letter), January 1990.
13. Panel Reviewer for National Science Foundation, Mechanics and Structural Systems Division, September 1990.
14. Tau Beta Pi and Sigma Tau Engineering Honoraries

15. Session Organizer and Chair: ASCE Computing '92; Dallas, TX, June 7-9; Session: "Advances in Object Oriented Programming for Scientific Codes"
16. Host Committee Member, ASME Conference on Vibrations, 1993.
17. Session Chair: Risk Assessment, ASCE 3rd Congress in Computing, 1996
18. Session Chair: World Automation Congress, Montpelier, France, 1996
19. Society for Risk Analysis, Member 1996
20. Treasurer, UNM Chapter, Sigma Xi, 1994-95
21. Session Organizer, Special Coatings for Stone Surfaces, STREMA '97, Spain
22. President-elect, UNM Chapter, Sigma Xi, 1995-96
23. Conference Tutorials Chair: NASA URC Conference, Albuquerque, 1997
24. International Scientific Advisory Committee, Fifth International Conference on Structural Studies, Repairs, and Maintenance of Historical Buildings, Wessex Institute of Technology, Southampton, UK.
25. International Scientific Advisory Committee, Artificial Intelligence in Engineering-1998, Wessex Institute of Technology, Southampton, UK
26. President, UNM Chapter, Sigma Xi, 1996-98
26. Past President, Executive Committee, UNM Chapter, Sigma Xi, 1999-00
27. Session Chair, World Automation Congress, June 2000, Maui, Hawaii
28. Master of Ceremonies, Talent Show, World Automation Congress, June 2000
29. Member, Advisory Committee, Berkeley Initiative in Soft Computing, Environmental Management Systems
30. Organized the first Uncertainty Quantification Workshop, Los Alamos National Laboratory, June 6-7, 2005.

E.5 University and Departmental Committees

1. College of Engineering Research Committee, 1988-1990; Chairman
2. College of Engineering Research Committee, 1990-1991; Member
3. College of Engineering Teaching Committee, 1992-1993; Member
4. Civil Engineering Curriculum Committee, 1988-1991; Member
5. Civil Engineering Graduate Committee, 1992; Member
6. University Admissions and Registration Committee, 1991-1993; Member
7. University Panel Reviewer for NSF ARI Program, February 7, 1992
8. University Honorary Degree Committee, 1993-1995; Member
9. Civil Engineering Computer Committee, Member; 1993
10. School of Engineering Policy Committee, Member 1996-97
11. Civil Engineering Curriculum Committee, Member 1996-99
12. School of Engineering Regents' Professor selection committee, 1996
13. Civil Engineering New Facility Committee, Chairman, 1996-97
14. ASTRA Education Committee, Chairman, 1997-98
15. UNM Athletic Council, Member, 1999-2002
16. Civil Engineering Strategic Planning Committee, Chair, 1999-2006
17. Civil Engineering M.Eng Committee, Chair, 2002-2005
18, President, UNM Faculty Club Association, 2006-2008
19. Member, UNM Faculty Senate, 2006-2008 and 2009-2011
20. Member, UNM Faculty Senate Operations Committee, 2007-2008, 2009-2012
21. President-elect, UNM Faculty Senate, 2010-2011

22. President, UNM Faculty Senate, 2011-2012

E.6 Search Committees

1. Research Director, College of Engineering, Member, Fall 1992
2. Assistant Professor, Dept. of Civil Engineering, Member, Spring, 1993
3. Chairman, Computer Science Dept., Member, Spring, 1993
4. Endowed Professorships, Anderson School of Management, Member, Oct. 1993
5. Chairman, Dept. of Civil Engineering, Spring 1994 and Spring 1997
6. Assistant Professor, Dept. of Civil Engineering, Member, Fall-Spring 2002-03
7. University President, Member, 2011

E.7 Local Professional Activities

1. Taught EIT Review Course for Strength of Materials; March 1987
2. Taught PE Review Course for Strength of Materials; September 1988
3. Tour of CE Labs for local High School Teachers; Fall 1990
4. Tour of CE Labs for Tau Beta Pi National Convention; October 20, 1990
5. Volunteer Organizer for Students, Supercomputing Conference, Albuquerque, Nov. 18-22, 1991
6. Volunteer Speaker for UNM College of Engineering-High School Evening, March 25,1992
7. Lecture and demonstration of the Civil Engineering Labs to INTEL Career Day participants, April 2, 1992
8. Lecture and demonstration of the Environmental SEM to Bernalillo Middle School participants, April 15, 1992
9. Lecture and demonstration of Civil Engineering Labs to Rehoboth Christian High School participants, April 24, 1992
10. Lecture and demonstration of the Environmental SEM to John Baker and LaMesa elementary school participants, May 13 and May 20, 1992
11. Lecture and demonstration of the Environmental SEM to Upward Bound Program for high school participants, June 16, 1992
12. Lecture and demonstration of the Environmental SEM to Native American Program participants, July 7, 1992
13. UNM College of Engineering Nominee for "El Pavo Sin Alas" Award; 9/92
14. Lecture and demonstration of the Environmental SEM to Liberal Kansas Junior College group, February 22, 1993
15. Professional consulting in structural engineering to local firms and individuals; 1987 to present.
16. American Indian Society of Engineering and Science (AISES) Students, Faculty Advisor, UNM Chapter, 1993
17. Invited Speaker, High Consequence Operations Colloquium, Fuzzy Logic in Risk Assessment, Sandia National Laboratories, Sept. 14, 1995.
18. Session Organizer, Society for Woman Engineers, Risk Assessment, Summer 1997.
19. Taught FE Review Session for Structural Analysis, March 2007.

E.8 Short Courses Attended

Quantitative Risk Assessment for Environmental and Occupational Health Hazards, Massachusetts Institute of Technology, Technology, Management and Policy Program, July 20-24, 1992.
Ecological Risk Assessment Workshop, Savannah River, Georgia, August 1996.
New Techniques in Risk Assessment, Houston, TX, October 1996

E.9 Professional Registration

1. Professional Engineer, Virginia, License #8554 (inactive)
2. Professional Engineer, New Mexico, License #7777 (inactive)
3. Professional Engineer, Washington State, License #45097 (active)

E.10 Corporate Directorships

1. Chairman of the Board of Directors, Kachina Technologies, Inc., Albuquerque, NM; (produces Linux software, hardware and internet services); approximately $250,000 annual revenues; currently dissolved.
2. Member of the Board of Directors, Object Science Corporation, Albuquerque, NM; R&D contractor to US government; currently inactive

F. PROFESSIONAL REFERENCES

Professional and personal references will be provided upon request.

G. SCHOLARLY ACTIVITIES PRIOR TO UNM (1987)

Conference Papers

Ross, T. J., "Experimental Techniques for Shock Loading", AFOSR Concrete Workshop, Air Force Institute of Technology, Wright-Patterson AFB, Ohio, October 1986.

Bezdek, J.C., Grimball, N.T., Carson, J.M., and Ross, T.J.,"Structural Damage Analysis with Fuzzy Sets," Proceedings of International Symposium on Fuzzy Mathematics in Earthquake Researches, Seismological Press, F. Deyi and L. Xihui, eds., Beijing, 1986, Vol. II, pp. 50-60.

Wong, F.S. and Ross, T.J., "Treatment of Uncertainties in Structural Dynamics Models," Proceedings of the International Symposium of Fuzzy Mathematics in Earthquake Researches, Seismological Press, F. Deyi and L. Xihui, eds., Beijing, China, Sept. 3-6, 1985, pp. 107-119.

Wong, F.S. and Ross, T.J., "Uncertainties and Reliability Analysis of Shallow-Buried Structures," Proceedings of the Fourth International Conference on Structural Safety and Reliability, Kobe, Japan, 27-29 May 1985, Vol. 2, pp 31-36.

Ross, T.J., "Characterizing Impulsive Failure in Buried Reinforced Concrete Elements," Proceedings of the Second Symposium on the Interaction of Nonnuclear Munitions with Structures, Panama City, Florida, 15-19 April 1985, pp 35-40.

Ross, T.J., "Dynamic Rate Effects on Timoshenko Beam Response," Joint ASME/ASCE Applied Mechanics, Fluids Engineering, and Bioengineering Conference, Albuquerque, New Mexico, 24-26 June 1985, ASME Preprint 85-APM-21.

Krawinkler, H. and Ross, T.J., "Implusive Direct Shear Failure in R/C Slabs," ASCE Structures Congress, San Francisco, California, 1-3 October 1984.

Wong, F.S., Ross, T.J., and Boissonnade, A.C., "Fuzzy Sets and Survivability Analysis," Proceedings of the First International Conference on Fuzzy Information Processing, 22-26 July 1984.

Ross, T.J. and Wong, F.S., "On the Treatment of Subjective Uncertainty in Hardened Structure Damage Evaluation Using Fuzzy Sets," Joint DOD Agency Damage Assessment Symposium, US Army Harry Diamond Laboratory, 1-3 May 1984.

Research Reports

Ross, T.J., "Direct Shear Failure in Reinforced Concrete Beams Under Impulsive Loading," AFWL-TR-83-84, September 1983.

Ross, T.J., "ASFC Task 376303 Test Plan: KACHINA TEST SERIES," AFWL Report, January 1981 with First Revision June 1981.

Ross, T.J., "Finite Difference Analysis of Closures, "Defense Intelligence Agency, PV(N) TM 1-75, January 1975.

Ross, T.J., "Documentation of the Use of the Finite Element Analysis and Plotting Programs SLIP-GENPLT," Defense Intelligence Agency, Physical Vulnerability Branch, PV(N) TM 12-74, August 1974.

Classified Reports (some titles are facsimiles)

Sylva, R., Spring, S., Wilson, H., Henny, R. and Ross, T.J."Missile Blast Vulnerability Tests", FTD-2660P-167/10-91, Air Force Foreign Technology Division, Wright-Patterson AFB, OH, 18 January 1991, WNINTEL.

Ross, T., Bair, R., Henny, R., Renick, J. and Summa, W., "Progress on the Analysis of Soviet Nuclear Blast and Shock Simulators", Weapons Laboratory, WL-TR-90-43, Kirtland AFB, New Mexico, July 1990.

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Funded Grants/Projects as Principal Investigator

Topic	Sponsor	Amount	Period
Dynamic Eulerian Finite Element Code - Phase II SBIR*	DNA (Dr. Kent Goering)	$499,500	1988-1990
Evaluating Accuracy of Structural Dynamics Models-Phase I SBIR*	NASA/JPL (Mr. John Garba)	$7,168 (subcontract to EMA Inc.)	1988
Development of a new SEM for Measuring Dynamic Fracture in Brittle Materials-Phase I SBIR*	AFOSR (Dr. Spencer Wu)	$61,077	1987
Stochastic Models for Protective Structures-Phase I SBIR	AFESC/RD (Lt. Britt Bowen)	$48,860	1987
Dynamic Eulerian Finite Element Code - Phase I SBIR	DNA (Dr. Kent Goering)	$61,662	1987
A New Diffusing-Vortex Numerical Scheme; Phase I SBIR*	NSF (Dr. Ray Chen)	$48,818	1987
Frame-to-Frame Coherence for 3D Animation-Phase I SBIR*	US Army (Mr. Paul Senter)	$49,034	1987
Linguistic Damage Assessments	AFWL Director (Dr. Art Guenther)	$15,000	1985
Pattern Recognition Methods	AFWL Director (Dr. Art Guenther)	$58,000	1985
Dynamic Shear Failures in Reinforced Concrete	AFOSR (Dr. Mike Salkind)	$385,000	1984-86
Stochastic Differential Equations for Direct Shear Failure	AFWL Director (Dr. Art Guenther)	$5,000	1984

*listed as Co-Principal Investigator

Student Committees

Student	Topic	Degree
Steven J. Savage	Development of a Rule-Based Structural Damage Assessment Code	MSCE, Washington State 1986
Brad M. Mickelsen	Investigation of the Failure of Timoshenko Beam Model Subjected to a Blast Load	MSCE, Washington State