

CURRICULUM VITAE
Timothy J. Ross

Table of Contents

A. PERSONAL DATA, EDUCATION, AND EXPERIENCE	1
<u>A.1 Personal Data</u>	1
<u>A.2 Formal Education</u>	1
<u>A.3 Professional Experience</u>	1
<u>A.4 Honors and Awards</u>	2
<u>A.5 Civic Activities</u>	2
B. TEACHING, SEMINARS, STUDENT SUPPORT, LAB DEVELOPMENT	4
<u>B.1 Courses Currently Teaching</u>	4
<u>B.2 Teaching Evaluations</u>	4
<u>B.3 New Courses Developed</u>	5
<u>B.4 Courses Taught on Instructional Television</u>	5
<u>B.5 Short Courses Developed and Taught</u>	6
<u>B.6 Invited Lectures and Seminars</u>	7
<u>B.7 Graduate Students Supported on Grants</u>	8
<u>B.8 Undergraduate Students Supported on Grants</u>	8
<u>B.9 MS Thesis Committee Member</u>	9
<u>B.10 PhD Dissertation Committee Member</u>	10
<u>B.11 Dissertation or Thesis Advisor</u>	11
<u>B.12 Laboratories Developed</u>	12
C. BOOKS, PUBLICATIONS, WRITINGS, AND PATENTS	14
<u>C.1 Books</u>	14
<u>C.2 Refereed Publications</u>	14

<u>C.3 Non-reviewed Conference Papers/Presentations since 1987</u>	23
<u>C.4 Research Reports since 1987</u>	27
<u>C.5 Thesis and Dissertation</u>	29
<u>C.6 Non-Technical Writings</u>	29
<u>C.7 Patents</u>	29
D. RESEARCH FUNDING AND COMPENSATION TO THE DEPARTMENT	30
<u>D.1 Research Proposals Currently in Review</u>	30
<u>D.2 Funded Research</u>	30
<u>D.3 Research Proposals Declined</u>	34
<u>D.4 Release Time Compensation Provided to Department</u>	36
E. INTERNATIONAL, NATIONAL, UNIVERSITY, CIVIC ACTIVITIES	37
<u>E.1 International or National Editorships</u>	37
<u>E.2 Citations in National or Regional Publications</u>	37
<u>E.3 National Committees</u>	37
<u>E.4 International or National Professional Activities</u>	37
<u>E.5 University and Departmental Committees</u>	38
<u>E.6 Search Committees</u>	38
<u>E.7 Local Professional Activities</u>	38
<u>E.8 Short Courses Attended</u>	39
<u>E.9 Professional Registration</u>	39
<u>E.10 Corporate Directorships</u>	39
F. PROFESSIONAL REFERENCES	
G. SCHOLARLY ACTIVITIES PRIOR TO UNM (1987)	41

CURRICULUM VITAE

Timothy J. Ross

Department of Civil Engineering
University of New Mexico
Albuquerque, NM 87131
(505) 277-3459
(505) 277-1988 FAX
e-mail: ross@unm.edu

Rank and Titles:

Professor and Regents' Lecturer, Civil Engineering
Professor of Electrical and Computer Engineering (joint appointment)
Adjunct Professor, Dept. of Civil Engineering, University of Calgary, Alberta
Years at UNM: 18 (Joined faculty in January 1987)

A. PERSONAL DATA, EDUCATION, AND EXPERIENCE

A.1 Personal Data

Birthplace: Spokane, Washington
Four (4) Children: Ages 19 through 29

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

1999-Present: Faculty Affiliate, Los Alamos National Laboratory
2001-2002: Sabbatical Leave, Fulbright Scholar, University of Calgary, Visiting Professor, Calgary, Alberta, Canada
1994-Present: Professor and Regents' Lecturer, University of New Mexico, 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: Senior Research Structural Engineer, 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: Vulnerability Engineer, 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

- 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
- 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

- 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
- 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-present
- Board of Directors and President, Kachina Technologies, Inc. 1989-present
- Board of Directors, Object Science Corporation, 1994-present

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

CE 520 Structural Dynamics, Fall 2005

B.2 Teaching Evaluations from Students

ICES RATINGS FOR INSTRUCTOR

(Scores are out of Possible 6.0)

Course Title	Semester	Mean	Standard	Sample
		Mdn	Dev	Size
CE 521-Earthquake Engineering	Fall 2005	4.8	0.94	6
CE 308-Structural Analysis	Fall 2005	4.1	1.36	19
CE 548-Fuzzy Logic Applications	Fall 2005	5.5	0.96	8
CE 520-Structural Dynamics	Fall 2004	4.8	1.06	9
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 at the University of Calgary; 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

B.4 Courses Taught on Instructional Television

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

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.

B.6 Invited Lectures and Seminars

Place	Date	Topic
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 Edu.	March 16, 1998	Information Technology in Engineering
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

(through Fall semester '97)

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 Trembl	LANL	GRA, 1999-2004	PhD Program (EE)
Greg Chavez	LANL	GRA, 2003-2005	PhD Program (CE)
Rhonda Young	Sandia	\$8,000-2003-04	MS 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 Malanchara	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

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
Rachel Mintz	MS, Chemical Engineering, University of Calgary; May 2004; Fuzzy Control

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	Structural dynamics and control Passed GQE 1997	PhD program
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 Trembl	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 of Structures subjected to Earthquake Loading	MSCE; expected summer 2005
Tom Nordstrand	Vibration characteristics of Intell Processor	MSCE, expected Spring 2005
Gregory Chavez	Possibility theoretical developments Passed general qualifying exam, Nov. 2002	PhD candidate; exp Spring 2006

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 moire 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: Keve x-ray analyzer; 1000°C 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 120

TOTAL PATENTS ISSUED: 1

*Names with an asterisk * are student co-authors*

C.1 Books

"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., Vadiie, 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

“A Novel Approach to the Response of Rocking Rigid Blocks”, in review with Earthquake Engineering and Dynamic Response, (with J. Lucero*).

“A Comparison of Fuzzy Inference Systems Applied to Dynamic Simulation”, in review with IEEE Transactions, CMS (with J. Lucero*).

“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).

“Engineering Index: An Engineering Certification/Qualification Metric“, to appear J. Military Operations Research (with J. Booker, R. Dolin, C. Faust, M. Hamada, L. Najera and B. Reardon).

“Heat Exchanger Network Optimization and Controllability Using Design Reliability Theory”, to appear in ICHEME Transactions, Pt A, Chemical Engineering Research & Design (with Rodolfo Tellez, William Svrcek, and Brent Young).

"Review of Dynamics of Structures: Theory and Applications to Earthquake Engineering by Anil S. Chopra", ASCE J. Struct. Engng., 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).

* Indicates student coauthor

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

"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 AND INVITED PAPERS

Ross, T. (2004) "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, Albuquerque, NM (CD ROM and proceedings, p. 99). (with C. Trembl*)

"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.)

"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).

"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).

“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).

"Application of Fuzzy Set Theory to Attribute Data for Quality Control in Beryllium Part Manufacturing", Proceedings 5th Int. Conf. Engrg Design and Automation, Las Vegas, NV, August 5-8, 2001, pp. 300-305 (refereed paper #66 with J. Parkinson, K. Hench, S. Abeln, F. Mortensen, P. Wantuck and M. Jamshidi).

"Assessing the Predictive Accuracy of Complex Simulation Models", Joint 9th IFSA World Congress and 20th NAFIPS International Conference, Vancouver, BC, July 25-28, 2001, IEEE Publications, ISBN: 0-7803-70079-1, Paper #355, pp. 2008-2012 (with V. Kreinovich and C. Joslyn).

"Optimal Elimination of Inconsistency of Expert Knowledge Formulation of the Problem, Fast Algorithms", Proceedings, Int. Conf. On Intelligent Technologies, Assumption Univerisity, Bangkok, Thailand, Dec. 13-15, 2000, pp. 450-458 (coauthors V. Kreinovich and B. Wu).

“Possibility Intervals in the Characterization of Dynamic Model Uncertainty”, proceedings of the 19th Int. Conference of NAFIPS, PeachFuzz ‘2000, Atlanta, GA, July 2000, IEEE Publ., T. Whalen (ed), ISBN 0-7803-6274-8, pp. 353-357.

“Application of Fuzzy Set Theory for Exposure Control in Beryllium Part Manufacturing”, 4th World Automation Congress, Maui, Hawaii, June 2000 (CD-ROM), (with W. Parkinson, S. Abein, K. Creek, P. Wantuck and M. Jamshidi).

“A New Method for the Development of Empirical Possibility Distributions”, ”, 4th World Automation Congress, Maui, Hawaii, June 2000 (CD-ROM), (with S. Donald*).

“Application of Fuzzy Logic to the Decision Analysis for Waste Management”, 4th World Automation Congress, Maui, Hawaii, June 2000 (CD-ROM),(with F. L. de Lemos, T. Sullivan, and W. Caminhas).

"System Reliability: A Case When Fuzzy Logic Enhances Probability Theory's Ability to Deal With Real-World Problems", 18th Int. Conference of NAFIPS, New York City, June 10-12, 1999, pp. 81-84, R. Dave and T. Sudkamp (eds), IEEE Paper 0-7803-5211-4, (with C. Ferregut, R. Osegueda, and V. Kreinovich).

“Case Studies in Civil Engineering: Fuzzy Logic Applications”, *Invited Lecture*, First International Workshop on Current Trends and Developments in Fuzzy Logic, Thessaloniki, Greece, October 16-20, 1998; published by the Greek Telecommunications conglomerate, Intracom, Athens, Greece, 1999, pp. 211-236 (also <http://obelix.ee.duth.gr/~apostolo/workshop>).

"A New Safety Analysis Approach Using Enhanced Mathematical Structures", Proceedings of the European Safety and Reliability Conference, Vol. 2, pp. 657-664, June 1998, Balkema Publishers, Trondheim, Norway (with J. A. Cooper).

"The Application of New Mathematical Structures to Safety Analysis", IEEE International Conference on Fuzzy Systems (FUZZ-IEEE '98), IEEE Proceedings, Vol. 1, pp. 692-697, May, 1998 (with J. A. Cooper).

"Mathematical Relations for Incorporating Subjective Expertise into Safety Analysis," International Conference on Probabilistic Safety Assessment and Management (PSAM 4), Vol. 3, pp. 1931-1936, A. Mosleh and R. A. Bari (eds), Springer Publishers, September, 1998 (with J. A. Cooper).

“Fuzzy Risk Analysis”, Proceedings, Decision Sciences Institute Annual Meeting, Nov. 22-25, 1997, San Diego, CA, Vol. 2, pp. 498-500 (with V. Gupta and M. Murtaza).

"Improved Safety Analysis Through Enhanced Mathematical Structures," Proceedings of the 1997 IEEE International Conference on Systems, Man, and Cybernetics, pp. 1656-1661, October, 1997 (with J. A. Cooper).

“Building Knowledge Support in Scientific Computing with Object Technology”, Proceedings, Applications of Artificial Intelligence in Engineering XII, Computational Mechanics Publication, Southampton, UK, Capri, Italy, July 7-9, 1997, pp. 153-156 (also on CD ROM) (with W. Deng*).

“Development of a surface-specific, anti-weathering stone preservative treatment”, in Structural Studies, Repairs and Maintenance of Historical Buildings, Computational Mechanics Publication, Southampton, UK, San Sebastian, Spain, June 25-27, 1997, pp. 233-242 (with S. Rao*, C. Scotto and J. Brinker).

“A Fuzzy Logic Paradigm for Fault Trees and Event Trees in Risk Assessment”, ASCE 3rd Congress on Computing, J. Vanegas and P. Chinowsky, eds. Anaheim, CA, June 17-19, 1996, pp. 369-375 (with Donald, S.*).

“Use of Fuzzy Logic and Similarity Measures in the Risk Management of Hazardous Waste Sites”, ASCE 3rd Congress on Computing, J. Vanegas and P. Chinowsky, eds. Anaheim, CA, June 17-19, 1996, pp. 376-382 (with Donald, S.*).

“An Integrated Probabilistic and Fuzzy Multi-Objective Method for Hazardous Waste Risk Management”, Int. Conference on Probabilistic Safety Assessment and Management, Crete, Greece, June 24-28, 1996, Vol. 1, pp. 726-731.

“Reliability in Manufactured Products: Fuzzy Event and Fault Trees”, Proc. Second World Automation Congress, Montpellier, France, May 27-30, Vol. 5, pp. 551-556, 1996.

"In-situ RF/Microwave Remediation of Soil Experiment Overview", submitted to Microwave and high frequency heating Inter. Conference, St. John's College, Cambridge, September 17-21, 1995 pp. D3.1-D3.4 (with Regan, A.*, Palomares, M., Polston, C., Rees, D., and Roybal, W.).

"The case for a professional school of engineering: a 10-year plan for significant change", ASEE Annual Conference, Anaheim, CA, June 24-29, Session 2355, Future of Professional Degrees, 1995.

"A Fuzzy Multi-objective Approach to Risk Management", Proc. 2nd Congress in Computing in Civil Engineering, Atlanta, GA, June 5-7, 1995, pp. 1400-1403, (with S. Donald*).

"Fuzzy classification of modal vibration data", ASCE Structures Congress '95, Boston, MA, April 3-5, 1995, pp. 1647-1650, Vol 2: Restructuring America and Beyond, Masoud Sanayei, (ed) (with T. Hasselman).

"On Establishing a System for Performing Dynamic Moire' Interferometry and Some Preliminary Results", 12th Congress of Applied Mechanics, ASME/ASCE, Seattle, WA, June 26-July 1, 1994, p. 507 (with A. Vasil* and A. Maji)

"Decision-Making Paradigm for Risk Assessment of Hazardous Wastes using Fuzzy Sets", First ASCE Congress on Computing in Civil Engineering, Session: Managing Uncertainty in Project Planning and Execution, June 1994, pp. 200-207 (with J. Trumm* and Sunil Donald*)

"Propagation of Modeling Uncertainty Through Structural Dynamic Models", AIAA Paper 94-1316, Proceedings AIAA/ASME 35th Structures, Structural Dynamics, and Materials Conference, April 18-20, 1994, Hilton Head, SC, pp.72-83 (with T. Hasselman and J. Chrostowski).

"Rate of Ferrous Metal Corrosion as Influenced by Biological Activities",
Extended abstract, American Institute of Chemical Engineers Annual Meeting, St.
Louis, MO, November 1993, p. 79 (with L. Barton, and S. Rao*)

"A Framework-Based Environment for Object-Oriented Scientific Codes",
Proceedings, Society of Industrial and Applied Mathematics (SIAM) Object
Oriented Numerics Conference, Sunriver, OR, April 1993 (with R. Ballance, A.
Giancola, and G. Luger), pp. 25-35

"Interval Prediction in Structural Dynamic Analysis", Proceedings, AIAA 33rd
Structures, Structural Dynamics and Materials Conference, April 1992, Dallas,
TX, pp. 1272-1284 (with T. Hasselman and J. Chrostowski).

"Two Paradigms for OOP Models for Scientific Applications", Proc. ASCE 8th
Conference in Computing in Civil Engineering, June 7-9 1992, Dallas, TX, pp.
535-542 (with P. Morrow, L. Wagner*, and G. Luger).

"Determination of the Rate of Biocorrosion via Hydrogenase Activity",
Proceedings 1992 National R&D Conference on the Control of Hazardous
Materials, Hazardous Materials Controls Research Institute, San Francisco, CA,
February 4-6, 1992, pp. 280-283 (with R. Sharp* and L. Barton).

"The Predictive Accuracy of Structural Dynamic Models", Proceedings of the
ADPA/AIAA/ASME/SPIE Active Materials and Adaptive Structures Conference,
Alexandria, VA, 4-8 November 1991, pp. 605-612 (with T. Hasselman and
Chrostowski).

"Assessing Damping Uncertainty in Space Structures with Fuzzy Sets", NASA
Space Operations, Applications and Research Symposium, June, 1990,
Albuquerque, NM (T. K. Hasselman).

"SEM Dynamic Microscopy", in Micro-mechanics of Failure of Quasi-Brittle
Materials, S. P. Shah, S. E. Swartz and M. L. Wang, (eds.), Elsevier Applied
Science, New York, 1990, pp. 365-374 (with B. Fishbine, R. Macy, and M.
Wang).

"Integrated Knowledge-Based System for Structural Design", US Army
CERL/ASCE First Joint Conference on Expert Systems, January 1989, pp. 72-79,
Invited Paper, (with F. S. Wong).

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

"Performance Evaluation of Space Construction", Space 88, Albuquerque, NM, ASCE
Publications, August 1988, pp. 1250-1259 (with F. Hadipriono).

"Dynamic Analysis of Arches", ASCE-EMD 7th Specialty Conference, VPI, Virginia, May
1988, p. 73 (with D. Merkle).

"Pattern Recognition Techniques for Distinguishing Structural Failure Modes from High Pressure Loading Records," Fourth ASCE Conference on Computing in Civil Engineering, W. Lenocker, ed., October 1986, pp. 699-713 (with J. M. Carson, D. Hyndman and and F. S. Wong).

"Structural Damage Assessment using AI Techniques," First International Conference on Applications of Artificial Intelligence to Engineering Problems, D. Sriram and R. Adey, eds., 15-18 April 1986, pp. 835-846 (with F. S. Wong).

"DAPS: An Expert System for Damage Assessment to Protective Structures," ASCE Expert Systems in Civil Engineering, C. N. Kostem and M. L. Maher, eds., April 1986, pp. 109-120 (with F. S. Wong, S. J. Savage* and H. C. Sorensen).

"Expert Opinions and Expert Systems," Ninth ASCE Conference on Electronic Computation, 23-26 February 1986, pp 43-52 (with F. Wong, W. Dong, and A. Boissonnade).

"Impulsive Direct Shear Failure in Reinforced Concrete Beams," Fifth ASCE-EMD Specialty Conference, Laramie, Wyoming, Vol. 1, pp 400-403, August 1984.

"Stochastic Post-Failure Models of Buried Slabs," Fifth ASCE - Engineering Mechanics Specialty Conference, 1-3 August 1984, Laramie, Wyoming, Vol 2, pp 1257-1260.

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

"Fuzzy SPC Filter for a Feed-Forward Control System for a Three-Phase Oil Field Centrifuge", 4th Int. Symp. Soft Computing for Industry, June 9-13, 2002, Orlando, FL, ISSCI Paper #011, Vol. 3, TSI Press, Albuquerque, NM (ISBN: 1-889335-17-7), (with W. Parkinson, R. Smith, F. Mortensen, P. Wantuck, and M. Jamshidi).

"A Fuzzy Setup and Control System for a Three-Phase Oil Field Centrifuge", 52nd Canadian Chem Engrg Conf., Vancouver, BC, October 20-23, 2002, Paper #045, abstract only (with W. Parkinson, R. Smith, T. Ross, R. Mintz*, N. Miller).

"Reaction Modeling with Fuzzy Logic", 52nd Canadian Chem Engrg Conf., Vancouver, BC, October 20-23, 2002, Paper #205, abstract only (with R. Mintz*, W. Svrcek, and B. Young).

"Process Controller Noise Rejection using Fuzzy Logic", 52nd Canadian Chem Engrg Conf., Vancouver, BC, October 20-23, 2002, Paper #513, abstract only (with G. Hay*, W. Svrcek, and B. Young).

"Tuning Modal Predictive Controllers using a Genetic Algorithm with Fuzzy Decision Making", 52nd Canadian Chem Engrg Conf., Vancouver, BC, October

20-23, 2002, Paper #514, abstract only (with J. vanderLee, W. Svrcek, and B. Young).

“Heat Exchanger Network Optimization and Controllability using Design Reliability Theory”, 52nd Canadian Chem Engrg Conf., Vancouver, BC, October 20-23, 2002, Paper #585, abstract only (with W. Svrcek, B. Young, R. and Tellez*).

“A fuzzy systems approach to the approximate solution of equations in solid mechanics”, NASA University Research Centers Student Conference, Nashville, TN, April 2000 (with J. L. Lucero*, and M. Morris*).

“A New Method to Assess Safety in Passive Systems”, Proceedings of the World Automation Conference, Soft Computing, Multimedia, and Image Processing, Anchorage, AK, May 1998, Vol. 8, p. 57 (with J. Lucero* and J.A. Cooper).

“Current Methods of Uncertainty Analysis in Human Health Risk Assessments”, Proceedings NASA URC/TC'97 Conference, Albuquerque, NM, Feb. 1997, Vol. 1, pp. 213-218, M. Jamshidi, et al. (eds) (with S. Donald*).

“Fuzzy Systems Tutorial”, Decision Sciences Annual Conference, Orlando, FL, Nov. 24, 1996 (with V. Gupta).

“Biosensors for Monitoring Environmental Wastes”, Proceedings 5th Annual WERC Technology Development Conference, April 1995 (with Barton, L., Tomei, F., Carpenter, C., Lindemann, W.).

"Environmental microscopy in stone surface preservation", presented at the Structures and Environmental Materials Conference (STREMA '95), Chania, Crete, Greece, May 22-24, 1995 (with S. Rao*).

"Tutorial: Fuzzy Expert Systems", Proceedings of the 5th International Conference on Computing in Civil Engineering, Anaheim, CA, ASCE Publications, June 1993, Vol. 1, pp. 722-725.

"Biocorrosion of Ferrous Metals using ESEM", Proceedings of 3rd WERC Technolgy Development Conference, Las Cruces, NM, April, 1993, (with S. Geiger*, L. Barton, and J. LaPointe), pp. 248-257

"Dynamic Moire Interferometry Study of Fracture in Brittle Materials", 1992 Conference of Society of Experimental Mechanics, Chicago, IL, November 1992 (with A. Vasil* and A. Maji).

"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.

"SEM Methods in Biocorrosion and Flocculation", Waste Management and Research Consortium (WERC) Technology Development Conference, Los Alamos, NM, April 20-22, 1992.

"Fuzzy Control Systems: Laboratory Experiments for an Engineering Curriculum", Proceedings of International Conference on Fuzzy Logic and Intelligent Control, University of Louisville, Speed Scientific School, Louisville, KY, March 16-18, 1992 (with M. Jamshidi, D. Barak*, S. Baugh*, and N. Vadiiee*).

"Dynamic Eulerian Finite Element Code: DELTA3D", Proceedings of the Defense Nuclear Agency Computational Structural Dynamics Conference, SRI International, Menlo Park, CA, October 10-11, 1990, (*Invited Paper*), Report No. DASIAC TR-90-008, Vol. II. pp. 239-263 (with J. Y. Liu).

"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

“Extensions to Rail Safety to Rockfall Hazards using Possibility Theory”, report submitted to the Fulbright Foundation, Washington, DC, August 2002.

“A Biologically Inspired Route to the Protection of Building Stone Surfaces”, report to the UNM Research Allocations Committee, Project #98-L-22, January 1999 (S. Rao*).

“Integrating DEE (Distributed Execution Environment) with MEVA (Modular Effectiveness/Vulnerability Assessment): Phase II”, OSC-98-001, Final report to the US Air Force Research Laboratory, Eglin AFB, FL; contract F08630-97-C-004, July 1998 (with S. Verzi* and G. Luger).

“An Investigation of New Mathematical Structures for Safety Analysis”, Sandia Report, SAND97-2695 (UC-706), November 1997 (with J. A. Cooper).

FY97 Annual Report: AEPI Risk Assessment/Management Program”, final report submitted to the Army Environmental Policy Institute, Georgia Institute of Technology, Atlanta, GA, September 26, 1997.

“Fuzzy Event Trees and Fuzzy Fault Trees in Risk Assessment”, final report submitted to Sandia National Laboratories, Albuquerque, NM, contract AR-9602, March 1997.

“Fuzzy Event Trees and Fuzzy Fault Trees in Risk Assessment”, final report submitted to Sandia National Laboratories, Albuquerque, NM, contract AN-6095, October 1995.

“Strategic Plan: Risk Assessment and Risk Management”, final report submitted to Army Environmental Policy Institute, Georgia Institute of Technology, Atlanta, GA, August, 1995.

"Environmental Risk/Cost Policy Modeling", final report submitted to Army Environmental Policy Institute, Georgia Institute of Technology, Atlanta, GA, October 1994.

"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).

"The Role of Bacteria in the Biocorrosion of Metals and in the Bioremediation of Contaminated Water", Report No. WERC-01-4-23249, New Mexico Waste-Management Education and Research Consortium, U. S. Department of Energy, Las Cruces, New Mexico, August 1994 (with L. Barton, S. Rao, P. Moore, T. Gallegos and H. Adams).

"Investigation of Intermediate Diaphragm Loads on Steel Bridges", Report FHWA-HPR-91-02, New Mexico State Highway and Transportation Department, Santa Fe, NM, June 1994 (with H. Sorensen, S. Donald*, S. Pringle*, K. Riddick*, and R. Thompson*)

"Development of a C++ Environment on the Cray for Large Scientific Codes", report to the Air Force Phillips Laboratory, Kirtland AFB, NM, November 1993 (with R. Ballance, A. Giancola, J. VanDyke and G. Luger)

"Investigation of Intermediate Diaphragm Loads on Steel Bridges", report to the New Mexico Highway and Transportation Department, Santa Fe, NM, November 1993 (with H. Sorensen).

"Biocorrosion and Flocculation Measurements in Waste Systems", Technical Report WERC-01-4-23164, New Mexico Waste-Management Education and Research Consortium, U. S. Department of Energy, Las Cruces, New Mexico, March 1993 (with L. Barton and J. LaPointe)

"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).

"Object-Oriented Programming in C++ on the Cray for Scientific Codes", Technical Report PL-TR-91-1037, Phillips Laboratory, Kirtland Air Force Base, New Mexico, November 1991 (with L. Wagner and G. Luger).

"Methods for Evaluating the Predictive Accuracy of Structural Dynamics Models", Technical Report to Engineering Mechanics Associates, Inc. under NASA/JPL Prime Contract NAS7-1064, October 31, 1991.

"A Pavement Rehabilitation Expert System (PARES) for Preliminary Design, Report No. FHWA-HPR-NM-88-03, New Mexico Highway and Transportation Department Publication, Santa Fe, NM, July 1990 (with S. Verzi*, S. Shuler, G. McKeen, and V. Schaefer).

"A New Diffusing-Vortex Numerical Scheme for Solving Incompressible Navier-Stokes Equations", Report to the National Science Foundation, NSF Grant No. ISI-8760931, 31 July 1988 (with Z. Lu and S. Kung).

"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 \$8.9 million

THIRTY (35) GRANTS (26 as PI, 8 as Co-PI)

Defense Threat Reduction Agency (1)

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

Co-PI, “An Intelligent Damage detection Module for Structural Health Monitoring” submitted to the National Science Foundation, March 1, 2005.

D.2 Funded Research

Principle Investigator, “Uncertainty Analysis using GIT Theories”, Los Alamos National Laboratory, November 1, 2004 to October 30, 2005; \$130,000.

Co-Principle Investigator, “Decision Sciences Project”, Defense Threat Reduction Agency, Washington, DC, October 1, 2004, \$800,000 (PI: Frank Gilfeather)

Co-Principle 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 LaB₆ 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

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. Eisenhower, 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 Modelling, 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, UNM Proposal 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

TOTAL \$117,753

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 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.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, Montpellier, 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

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, 1999-2004
17. Civil Engineering M.Eng Committee, Chair, 2002-2004

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

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.

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 (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

1. Member of the Board of Directors, Object Science Corporation, Albuquerque, NM; R&D contractor to US government; currently inactive

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., "Impulsive 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.

Funded Grants/Projects as Principal Investigator

<u>Topic</u>	<u>Sponsor</u>	<u>Amount</u>	<u>Period</u>
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 1988 (subcontract to EMA Inc.)	
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(Dr. Kent Goering)	DNA	\$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

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