

NADER VADIEE



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(IDMARS Robotics Research Lab.): <http://pursue.unm.edu/robotics/>

(Analog and Digital Electronics): <http://www.ece.unm.edu/electronics/>

(Coordinated Systems and Control): <http://pursue.unm.edu/csc/>

(Senior Design Project): <http://www.ece.unm.edu/sdp/>

EDUCATION

Ph.D. Electrical Engineering, the University of New Mexico, 1995

Dissertation Topic: “On a Programmable Fuzzy Logic Array (PFLA) Based on a New Fuzzy Logic Reasoning Paradigm.”

M.Sc. Electrical and Electronics Engineering, the University of Shiraz, 1978.

Thesis Topic: “Mapping of Ground Distribution of Mutually Incoherent Radiation Sources in the UHF Band by Sparse Antenna Arrays.”

B.Sc. Electrical and Electronics Engineering, University of Pahlavi, 1975.

Senior B.Sc. Project Topic: “Optimal Scheduling Program for Industrial Processes.”

EMPLOYMENT

Research Associate Professor, Intelligent Systems Engineering (ISE) Center, The University of New Mexico (UNM), Albuquerque, New Mexico, **spring 2002 -present**.

Responsible for various research projects on distributed collaborative robotics and intelligent control systems.

Program Director, UNM-NASA PURSUE Program, The University of New Mexico (UNM), Albuquerque, New Mexico, **1998- 2003**.

To support the Integration of Research into MSET Undergraduate Curriculum, Undergraduate Research Experience (URE), Mentoring MSET undergraduate students.

Research Assistant Professor, Autonomous Control Engineering (ACE) Center, The University of New Mexico (UNM), Albuquerque, New Mexico, **fall 1995 –fall 2001**.

Responsible for various researches projects on robotics and intelligent control systems.

Educational Program Consultant, Southwestern Indian Polytechnic Institute (SIPI), Albuquerque, New Mexico, **September 1994-1998**.

In charge of the evaluation of the Advanced Technology Education (ATE) programs at SIPI, revising, upgrading existing programs, and curriculum development in the Advanced Technical Systems (ATS) Department.

Adjunct Associate Professor, Department of Electrical and Computer Engineering, The University of New Mexico (UNM), Albuquerque, New Mexico, **fall 1995 -present**.
Responsible for teaching, revising, upgrading undergraduate and graduate electrical and computer engineering courses.

Engineering Consultant, New Mexico Engineering Research Institute (NMERI) at the University of New Mexico, **spring 1995**.
Responsible for the “Standby Power Plant Study” project conducted for Cheyenne Mountain Air Force Base (CMAFB), Colorado Springs, Colorado.

Author and Presenter, Nationwide workshops on fuzzy logic systems engineering and intelligent control systems, **1991-1994**.

Teaching Associate, Department of Electrical and Computer Engineering, the University of New Mexico (UNM), Albuquerque, New Mexico, **1993-1994**.
Responsible for teaching, revising, upgrading undergraduate and graduate electrical and computer engineering courses.

Member of Technical Staff, TSI Enterprises, Albuquerque, NM, **1987 – 1999**.
Responsible as principal investigator (PI) and co-PI in the preparation of research proposals, research in the areas of system identification, control, and robotics.

Member of the Board of Directors, Khavar Electric Company, Zahedan, Iran, **1984 – 1992**. Design engineer responsible for the analysis, design, and test of advanced voltage regulators and voltage stabilizer systems.

Chairman Electrical Engineering Department, University of Sistan and Baluchestan, Zahedan, Iran, **1985 – 1986**.

Quality Control Manager, SICAB Cable Manufacturing Company, Tehran, Iran, **1983-1985**. Quality Control and Quality assurance Manager for power and communication cables manufacturing.

Faculty of the Electrical Engineering Department, University of Sistan and Baluchestan, Zahedan, Iran, **1978 – 1986**.

Senior Instructor, Technical School of Electronics, University of Pahlavi, Shiraz, Iran, **1974–1975**.
Responsible for curriculum development and teaching courses in communication systems, radio and TV engineering.

ADVANCED COURSES

Advanced graduate-level courses in Neuro-cognitive psychology, Science of Intelligent Systems, Robotics, Intelligent Control Systems, Adaptive and Robust Control Systems, Fourier Optics, and C-programming Language.

ADVANCED TRAININGS

Manufacturing Technology Summer Institute, Los Alamos National Laboratories and New Mexico State University, Las Cruces, New Mexico, August 1996

Taihan Electric Company, Seoul, South Korea, 1984
Surveillance, testing, and quality control of communication cables

Feedback Company, London, England, 1985

Undergraduate level electrical and communication laboratory design and setup.

EXPERIENCE

Based on more than twenty five years of experience in both academia and industry, has conducted research, solicit for funds, design, supervise, and offer courses in electrical engineering and computer engineering. He has worked as chairperson at two-year and four -year colleges. He has submitted proposals to NSF, NASA, DoE, DOD, and departments of Education and Agriculture. He has received grants both research and education from Department of Energy, Department of Defense, and Department of Agriculture.

FUNDED RESEARCH

1. "Enhancement of EECE/UNM Introductory Electronics Laboratories Through LabView Data Acquisition System." UNM NASA PURSUES, \$ 150 K, 2001.
2. "Enhancement of SIPI/ Electronics Technology Laboratories Through LabView Data Acquisition System." UNM NASA PURSUES, \$ 100 K, 2001
3. "Distributed Collaborative Mobile Agents," UNM NASA PURSUES, \$ 150 K, 2001.
4. "Experimental Testbeds for Intelligent Control with Soft-computing Approaches for Waste Management." Waste Educational Research Consortium, Department of Energy," \$165 K, 1996-1998.
5. "FY97 DoD HBCU/MI Infrastructure Support Program Award,", SIPI, Air Force, Department of Defense, \$400 K, 1997-1999.
6. "Tribal Colleges Education Equity Grants," Department of Agriculture, \$ 150 K, 1997-1999.
7. "Design of a Television Engineering Training System," Ministry of Education, Iran, \$25 K, 1985.

ACADEMIC COURSES TAUGHT

I. The University of New Mexico:

Circuit Analysis I and II
Modeling and Analysis of Dynamic Systems
Signals and Communications
Electromechanical Energy Conversion Machines
Advanced Engineering Mathematics
Probability and Statistics for Electrical Engineers
Fuzzy Logic Engineering
Intelligent Control Systems
Electrical Engineering Laboratory
Analog and Digital Electronics Laboratory
Professional Engineering (PE and EIT) Courses

II. Other institutions of higher education

Electrical and Electronic Measurements Systems
Digital Electronics

Principles of Digital Computers
Advanced Engineering Mathematics
Electromechanical Devices
Electromagnetics
Semiconductor Electronics
Electrical and Mechanical Installations
Electrical Material Science
Feedback Control systems
Principles of Electrical Engineering
Principles of Radio and Television Engineering
Engineering Statics
Calculus I. and II
Advanced Algebra
General Chemistry

SHORT COURSES AND SEMINARS PRESENTED

Author and presenter of over 20 successful short courses and seminars on fuzzy logic and control, advanced fuzzy logic, and intelligent control systems offered nationwide in US and Mexico for well-known companies, national labs, government agencies, and academic institutions. A majority of this short course has been organized through the Professional Engineering Development Program of the School of Engineering, The University of New Mexico, and Albuquerque, New Mexico. The two other authors and presenters were professors Mo Jamshidi and Timothy Ross of the University of New Mexico. These short courses include:

1. "Computing with Fuzzy Logic: System Control applications," George Washington University, Continuing Engineering Education, Course 1777DC, March 18 – 20, 1992.
2. "Hands on Fuzzy Logic with Applications," The University of New Mexico, Professional Engineering Development Program, 1991-1992.
3. "Intelligent Control Systems," Los Alamos National Laboratory, Los Alamos, New Mexico, 1990.
4. "Advanced Fuzzy Systems," University of New Mexico, Professional Engineering Development Program, 1993-1994

PROFESSIONAL SOCIETIES

IEEE Society of Control Systems
IEEE Society of Computer Systems

EDITORIAL BOARDS

Associate Editor, Journal of Intelligent and Fuzzy Systems (IFS), John Wiley & Sons, Inc., 1993 -present

PUBLICATIONS

I. Books:

1. M. Jamshidi, N. Vadiiee, and T. Ross, (Eds.) **Fuzzy Logic and Control: Software and Hardware Applications**, Englewood Cliffs, NJ: Prentice Hall, 1993.
Over 3,000 copies sold worldwide. Adopted by Motorola Company to accompany a tutorial software package on fuzzy logic.
2. M. Jamshidi, D. Kauffman, and N. Vadiiee, (Eds.) **Proceedings of the First ACE-PURSUE Student Conference - Advances in Research and Education in Science, Mathematics and Engineering**, Volume 2, ACE Center Series, University of New Mexico ACE Center, ACE Center Press, 1999

3. N. Vadiee, M. Jamshidi, and D. Kauffman, (Eds.) **Proceedings of the Third ACE-PURSUE Student Conference - Advances in Research and Education in Science, Mathematics and Engineering**, ACE Center Series, University of New Mexico ACE Center, ACE Center Press, 2001 (To Appear)

II. Book Chapters:

1. N. Vadiee, " Fuzzy Rule-Based Systems (FRBES) Models, Part 1: Mathematical Foundations," Chapter 3, M. Jamshidi, N. Vadiee, and T. Ross, (Eds.) **Fuzzy Logic and Control: Software and Hardware Applications**, Englewood Cliffs, NJ: Prentice Hall, 1993
2. N. Vadiee, " Fuzzy Rule-Based Systems (FRBES) Models, Part 2: Models and Computational techniques," Chapter 4, M. Jamshidi, N. Vadiee, and T. Ross, (Eds.) **Fuzzy Logic and Control: Software and Hardware Applications**, Englewood Cliffs, NJ: Prentice Hall, 1993
3. N. Vadiee, "Fuzzy Control Systems," Chapter 13, **Fuzzy Logic with Engineering Applications**, Timothy J. Ross, McGraw-Hill, Inc., 1995.

III. Short Course Notes:

1. N. Vadiee, " **Neuro-computing Systems, Short Course Notes**," University of New Mexico, 1988.
2. N. Vadiee, " **Fuzzy Logic with Applications**," National Short Course Notes, University of New Mexico, 1992
3. N. Vadiee, "Advanced **Fuzzy Systems**," Short Course Notes, University of New Mexico, 1994.

IV. Technical Reports, Theses, and Dissertations:

1. N. Vadiee and H. Alvandi, " Optimal Scheduling Program for Industrial Processes," Technical Report, Department of Electrical Engineering, Pahlavi University, Shiraz, Iran, 1974.
2. N. Vadiee, " Mapping of Ground Distribution of Mutually Incoherent Sources in the UHF Band by Sparse Antenna Arrays," M.Sc. Thesis, Shiraz University, Shiraz, Iran.
3. M. Jamshidi, W. Horne, and N. Vadiee, " Neural Networks-Based Control and Trajectory Generation of Robot Manipulators," Final Report, grant No. 06-1977, Submitted to Principles Group, Robotics and Intelligent Machines Division, Sandia National Laboratories, Albuquerque, New Mexico, November 1989.
4. N. Vadiee, D. Moser, and M. Jamshidi, " Identification and Control of Conical Scan Problems," Technical Report, CAD Laboratory Systems/Robotics, June 1990
5. M. Jamshidi, N. Vadiee, and Y. Li, " STARLAB: System Identification and Modeling for Pointing and Tracking," Final Report, Sub-contract No. 907114, Prime Contract No. N00014-85-0355 (Logicon R&D Associates), Submitted to the Department of Navy, Office of Naval research, Arlington, VA, March 1994.
6. N. Vadiee, " On a Programmable Fuzzy Logic Array (PFLA) for Soft Fuzzy Reasoning Paradigms," Ph.D. Dissertation, the University of New Mexico, 1995
7. N. Vadiee, " PURSUE Program - Outcome Report," The University of New Mexico, Albuquerque, New Mexico, 1999.

V. Technical Papers:

1. N. Vadiie and M. Jamshidi, "A Design Philosophy for Multi-layer Artificial Neural Networks with Application to Robot Control," Proc. 2nd NASA Conference on Tele-robotics, Pasadena, CA, January 1989.
2. W. Horne, M. Jamshidi, and N. Vadiie, "Neural Networks in Robotics: A Survey," **Journal of Robotics and Intelligent Systems**, Vol. 2, No. 4, 51-66, 1989.
3. M. Jamshidi, B. Horne, and N. Vadiie, "Neural Networks: Their Role in Multi-layer Perceptrons," Proc. of the 29th IEEE Conference on Decision and Control, Vol. 6, pp. 3256-3257, 1990.
4. M. Jamshidi, D. Barak, S. Baugh, and N. Vadiie, "A Comparison of an Expert and an Adaptive Control Approach," Proc. IEEE CDC, Brighton, England, December, 1991
5. M. Jamshidi, D. Barak, S. Baugh, and N. Vadiie, "A Simulation Environment for Adaptive Fuzzy Control Systems," Proc. Society of Computer Simulation Conference, New Port Beach, CA, January 20, 1992," Proc. IEEE CDC, Brighton, England, December, 1991
6. N. Vadiie and M. Jamshidi, "A Tutorial on Fuzzy Rule-Based Systems (FRBES) Models, Part 1: Mathematical Foundations," **Journal of Intelligent and Fuzzy Systems**, Vol. 1, No. 2, pp. 171-188, 1993.
7. N. Vadiie and M. Jamshidi, "A Tutorial on Fuzzy Rule-Based Systems (FRBES) Models, Part 2: Models and Computational techniques," **Journal of Intelligent and Fuzzy Systems**, Vol. 1, No. 3, pp. 253-264, 1993.
8. N. Vadiie and M. Jamshidi, "Advanced Fuzzy Rule-Based Expert Systems," Proc. ICEE' 93, Teheran, Iran, May 18-22, 1993.
9. M. Jamshidi, D. Barak, S. Baugh, and N. Vadiie, "Fuzzy Control Systems: Laboratory Experiments for Engineering Curriculum," Proc. Intelligent and Fuzzy Control Systems Conference, Louisville KY, March 16-18, 1992.
10. M. Jamshidi, D. Barak, S. Baugh, and N. Vadiie, "Computational and Experimental Environment for Fuzzy Logic and Control," **Journal of Computers & Electrical Engineering**, Vol. 19, No. 4, pp. 289-298, July 1993.
11. A. Asgharzadeh, N. Vadiie, and M. Jamshidi, "Fuzzy Logic Applications in Image Processing and Printing," Proc. of SPIE, Boston, MA, pp. 54-58, September 8-10, 1993.
12. A. Asgharzadeh, M. Jamshidi, and N. Vadiie, "A Truth Qualified Fuzzy Logic Rule-Based Expert System with Application to Image Enhancement," Proc. Of IEEE World Congress on Computational Intelligence, Orlando, FL, June 26-July 2, 1994.
13. M. Akbarzadeh, M. Jamshidi, and N. Vadiie, "A Hierarchical Fuzzy Controller Using line-Curvature Feature Extraction for Single Flexible Arm," Proc. Of IEEE Congress on Computational Intelligence, Orlando, FL, June 26 - July 2, 1994.
14. N. Vadiie and M. Jamshidi, "The Promising Future of Fuzzy Logic: Comments on 'The Paradoxical Success of Fuzzy Logic' by C. Elkan," **IEEE EXPERT-Intelligent Systems and Their Applications**, Vol. 9, No. 4, pp. 36-38, August, 1994.
15. N. Vadiie and M. Akbarzadeh, "Analogous Fuzzy Rule-Based Systems," Proc. of Fuzz-IEEE Conference, New Orleans, Louisiana, Sept. 8-11, 1996.
16. N. Vadiie, "Cognitronics: Science and Technology of Cognitive Systems " Proc. Of the World Automation Conference (WAC' 96), Montpellier, France, May 27-30, 1996.
17. N. Vadiie, "On a Programmable Fuzzy Logic Array (PFLA) based on a New Fuzzy Reasoning Paradigm" Proc. Of the World Automation Conference (WAC' 96), Montpellier, France, May 27-30, 1996.
18. N. Vadiie, Drew J. Riedle, and M. Akbarzadeh, "A Fuzzy Logic Autonomous Controller for the Optimization of the Soil Vapor Extraction Process," Proc. of the WERC/HSRC Joint Conference, Albuquerque, New Mexico, April 22-24, 1997.
19. . R. Akbarzadeh, M. Jamshidi, and N. Vadiie, "Intelligent Robot Control in Waste Management Applications -: Research and Education Aspects," Proc. of WERC Conference, Albuquerque, New Mexico, 1998.

20. H. Nuttal, K. White, M. Mohramann, and N. Vadiie, "A New Interactive Computer-Based Process Control Course," Proc. of the AIChE 2000, November 2000.
21. D. Kauffman, M. Jamshidi, and N. Vadiie, "Student Assistance in Course Revisions through the PURSUE Program", Proc. of ASEE Conference, 2000.
22. N. Vadiie, M. Elyea, " Enhancement of the EECE Introductory Electronics Laboratories Through LabView Data Acquisition System," Proceedings of the Third ACE-PURSUE Student Conference - Advances in Research and Education in Science, Mathematics and Engineering, ACE Center Series, University of New Mexico ACE Center, ACE Center Press, April 2001.
23. N. Vadiie, " Research and Development Team - PURSUE Program, " Proceedings of the Third ACE-PURSUE Student Conference - Advances in Research and Education in Science, Mathematics and Engineering, ACE Center Series, University of New Mexico ACE Center, ACE Center Press, April 2001 .
24. H. Nuttal and N. Vadiie, "A New Interactive Computer-Based Process Control Course," ASEE Conference, Albuquerque New Mexico, June 2001.