

Curriculum Vitae

Paul P. Wang

Present Title and Affiliation

Professor of Electrical and Computer Engineering
Department of Electrical and Computer Engineering
Duke University
P.O. Box 90291
Durham, NC 27708-0291
Tel: (919) 660-5259 (O)
(919) 668-8536 (N. Pavilion)
(919) 489-1924 (H)
Fax: (919) 660-5293
SSN: 087-36-3807

Education

B.S.E.E. National Taiwan University, Republic of China, 1958
M.S.E.E. University of New Brunswick, Canada, 1963
Ph.D. Ohio State University, U.S.A., 1965

Professional Background

1960-62 Instructor in Electrical Engineering Dept., University of New Brunswick.
1962-65 Graduate and Research Assistant, E.E. Dept., Ohio State University.
1965-68 Member of Technical Staff, Bell Laboratories, Inc., Holmdel, N.J.,
(Communication Systems Research, Operations Research and Modern Control Theory).
1968-70 Assistant Professor of Electrical Engineering, Duke University
1970-75 Associate Professor of Electrical Engineering, Duke University
1974-75 Visiting Professor of Electrical Engineering, University of Massachusetts
1975-present Professor of Electrical Engineering, Duke University

Consulting Activities

1962: (Summer) Gibbs & Hill Consulting Co., New York City, (Electrical Power Plant Design)
1969-72: Consultant, Safeguard ABM, Western Electric Co., (Reliability, OR Models, Quality Control)
1974-75: Operation Researcher, Center for the Study of Aging and Human Development, Duke Medical Center, (Statistical Pattern Recognition)
1975-76: Consultant, Emerson Electric World Headquarters at St. Louis (Advanced F-5E Fighter Plane, Optimal Estimation and Digital Control Systems).
1976: Researcher, Research Department, Grumman Aerospace Corporation, (Highly Reliable Systems).
1977-Present: Member, Board of Directors, Knowledge Systems Institute, Chicago.
1977-78: Consultant to Assistant Secretary of the State of North Carolina on energy matters.
1977-79: Investigator, behavioral Neuropharmacology Laboratory, Duke Medical Center.

- 1978-89: Consultant, Western Electrical Co., (Kalman Filter design for Naval Surface Ships Navigation).
- 1980-90: Consultant, LORD Corporation (Touch Sensors, Robotics)
- 1986-2000: Advisor and Distinguished Lecture Chair to Computer Science Department, Tamkang University, Taiwan, Republic of China.
- 1990-91: Summers, ASEE-NASA Fellow, Langley Space Research Center, NASA.
- 1991-Present: Member, Board of Directors, Intelligent Machines, Inc., Sunnyvale, California.
- 2000-Present: Member of advisory board, Gravidata, Inc., a start-up information company with 20 employees.
- 2000-Present: Advisor for EICA, Equipo de Investigacion en Computo Artificial, Universidad Anahuac de Xalapa, Mexico

Grants and Awards

- 1968-76: Principal Investigator and Associate Investigator on research projects supported by Goddard Space Flight Center, NASA.
- 1972-74: Faculty Fellow, ASEE-NASA (Goddard Space Flight Center).
- 1978: Lecture Chair in Mathematical System Theory, Tamkang College, Taiwan, Republic of China.
- 1981 & 1982 Distinguished National Professorship at Huazhong University of Science and Technology and other Universities, Ministry of Education, People's Republic of China.
- 1988-Present: Hing Hua University, Honorary Board Member, University Foundation
- 1993-97: NSF and EPRI Research Grant
- 1993-96: CANON, Inc., Japan Research Center
- 1995-99: Holiday Inn World Wide Research Grant.
- 1997-Present: Director, Cooperative Research program between Duke University and Yuan Ze University.
- 1998-Present: Southwest Jiao Tung University, Advising Professor.
- 1998-2001: Visiting Chair Professor of Computer Science & Engineering, Yuan Ze University.
- 1999-2000: Cross Century Outstanding Scholar Award in Fuzzy Logic by Chinese Oversea Talents Foundation, Republic of China. (pure gold Chinese painting, etc.).
- 2000-2003 Co-Investigator (Principal Investigator, Erich Jarvis, Ph.D., Duke University Medical Center, Department of Neurobiology), Klingenstein Fund, 2000-EJ. Whitehall Foundation and Packard Foundation.

Professional Affiliations

- Founder: Association for Intelligent Machinery.
Joint Conference on Information Sciences.
Fuzzy Theory and Technology Conference (7th, 2000).
- Member: Institute of Electrical and Electronics Engineers.
Association for Computing Machinery
Classification Society
Pattern Recognition Society
North American Fuzzy Information Processing Society
Honorary member, Hing Hua Technical University Educational Foundation.

Editorial Affiliations

- Journal of Intelligent & Fuzzy Systems, Member of Advisory Board, John Wiley Publishers
- Policy Analysis and Information Systems, Area Editor, Plenum Publishing Corp., Fuzzy Mathematics, Editorial Board
- Advisory Editor, The Journal of Fuzzy Mathematics, International Fuzzy Mathematics Institute, Los Angeles, California, USA, since 1991.
- Bulletin Pour Les Sous Ensembles Flous et leur Applications Correspondents Etrangers
- Editor-in-Chief, Information Sciences—An International Journal, North Holland, Elsevier Publishing Company
- Three Journals: (i) Computer Theory & Informatics, (ii) Intelligent Systems, (iii) Applications.
- Member, Advisory Editorial Board, Fuzzy Optimization and Decision-Making, Editor-in-Chief, Shu-Cherng Fang, North Carolina State University, Raleigh, NC, USA (Kluwer Academic Publishers) 2000 to Present.

Publications

Wang, Paul P., and S.K. Chang (co-editors). *Fuzzy Sets: Theory and Applications of Policy Analysis and Information Systems*. Plenum Publishing Corp., New York, 1981. ISBN 0-306-40557-1.

Wang, Paul P. (Editor). *Advanced in Fuzzy Sets, Possibility Theory and Applications*. Plenum Publishing Corp., New York, 1983. ISBN 0-306-41390-6.

Wang, Paul P. *Fuzzy Set Theory & Applications*. Shanghai Science and Technology Publisher, 1981.

Wang, Paul P. (Editor). *Advances in Fuzzy Theory & Technology, Volume I, 1993*. Bookwrights Press. ISBN 1-990404-07-9.

Wang, Paul P. (Editor). *Advances in Fuzzy Theory Technology, Volume II, 1994*. Bookwrights Press, Durham, NC. ISBN 0-9643456-1-7.

Wang, Paul P. (Editor). *Advances in Fuzzy Theory & Technology, Volume III, 1995*. Bookwrights Press, Durham, NC. ISBN 0-9643456-6-8.

Sankar, K. Pal and Paul P. Wang (Co-Editors). *Genetic Algorithm and Pattern Recognition*. CRC Press, 1995.

Wang, Paul P. (Editor). *Advances in Machine Intelligence and Soft Computing*. Volume IV, 1997.

Wang, Paul P. (Editor and Author of Preface, Chapter 1, and co-author of another chapter). *Computing With Words*, Wiley-Interscience, John Wiley & Sons, Inc., ISBN 0-471-35374-4, 2001.

Wang, Paul P., and Shu-Heng Chen (Co-Editors), *Computational Intelligence in Economics and Finance*, a Proposal Submitted to the Springer-Verlag International Series on Advanced Information Systems (final stage of negotiation 2001).

Wang, Paul P. and Timothy Shih (Co-Editors), *Intelligent Virtual World*, World Scientific Publisher (under contract 2001).

Thesis & Dissertation

Wang, Paul P., "The Relationships between Surge Phenomena, Insulation Coordination and Lightning Arrester Applications." M.Sc. Thesis, University of New Brunswick, 1963.

Wang, Paul P., "Investigation of Methods of Evaluation the Transfer Function for Nonlinear Systems Using Impulses." Ph.D. Dissertation. Ohio State University, Columbus, OH, 1965.

Archival Journal Papers

1. Wang, Paul, P. "Tables of Laguerre Coefficients for Representation of Piecewise Linear Functions," Institute of Electrical and Electronic Engineers Transactions on Automatic Control. AC-10 (October 1965) 486-87.
2. Wang, Paul, P. "Legendre Coefficients for Piecewise Linear Functions," Institute of Electrical and Electronics Proceedings, 54 (August 1996) 1088-89.
3. Wang, Paul P. "On the Evaluation of the Parameters of a Nonlinear System," Institute of Electrical and Electronics Proceedings, 55 (March 1967) 468-69.
4. Wang, Paul P. "An Extension of Pell's Method of Phase Trajectory Construction," Institute of Electrical and Electronic Engineers Transaction on Automatic Control, AC-12 (June 1967) 338.
5. Wang, Paul P. "An Absolute Stability Criterion for Delta Modulation," Institute of Electrical and Electronics Engineers Transactions on Communication Technology, COM-16 (February 1968), 186-88.
6. Wang, Paul P. "Idle Channel Noise of Delta Modulation," Institute of Electrical and Electronic Engineers Transactions on Communication Technology, COM-16 (October 1968) 737-742.
7. Caprio, Umberto, and Paul P. Wang, "Synthesis of an Optimal Output Regulating System with a Reference Vector," Institute of Electrical and Electronic Engineers Transactions on Aerospace Electronics System, Volume 7, Issue No. 2, (1971) pp. 299-315.
8. Wang, Paul P. "The Optimality of Variable Sampling Schemes for a Digital Encoder," International Journal of Control, Volume 17, No. 3, 1973 pp. 587-596.
9. Chow, L.R.Y., H.A. Owen, Jr., and Paul P. Wang. "An Adaptive Estimation Algorithms for Time Varying Bit Synchronizers," Transactions on Aerospace and Electronic Systems, Institute of Electrical and Electronics Engineers, Volume AES-9, No. 1, (January 1973) pp. 76-83.
10. Chow, L.R.Y., H.A. Owen, Jr., and Paul P. Wang. "A Bit Synchronizer with Learning," Transactions on Communications, Institute of Electrical and Electronics Engineers, Volume COM21, NO. 3, (March 1973) pp. 226-230.
11. Mosse, Richard-L. and Paul P. Wang. "A Suboptimal Estimator for a Linear Plant Containing Semi-Markovian Switching Parameters," Transactions on Systems, Man and Cybernetics, Institute of Electrical and Electronics Engineers, Volume SMC-3, No. 3, (May 1973) pp. 277-281.

12. Wang, Paul P. and William S. Hodgkiss, Jr. "Feature Extraction on a Finite Set of Binary Patterns," Proceedings, International Symposium on Computers and Chinese Input-Output Systems, Academia Sinica, China, (August 1973) pp. 183-194.
13. Wang, Paul P. and Robert C. Shlau. "Machine Recognition of Chinese Characters Via Transformation Algorithms," Pattern Recognition Journal, Pattern Recognition Society, Volume 5, (1973) pp. 303-321.
14. Wang, Paul P. (One chapter) "Programming, Flow Algorithms and Transportation Networks" Published by Academia Sinica, in Lectures on Computer Science and Computer Systems (September, 1973)
15. Wang, Paul P. "On Pattern Recognition and Quality Control," Institute of Electrical and Electronics Engineers, Transactions on Systems, Man and Cybernetics, Volume SMC-5, (July 1974), pp. 470-472.
16. Wang, Paul P. and M.R. Smith "Photovoltaics: Operation, Fabrication and Application," International Journal PAIS, Vol. 2, No. 1, July 15, 1978, pp. 307-331.
17. Wang, Paul P. (Guest Editor) "Special Issue on Energy," International Journal of Policy Analysis and Information Systems, July 15, 1978, Volume 2, No. 2.
18. Wang, Paul P. Automated Software Program for Handling System Blocks and Optimal Features Selection for Binary-Partitioned Classification – (M, N) Algorithm, Special Topics Lecture Chair, Tamkang College, Republic of China. Monograph Publication No. 18, Feb. 1978. 93 pages.
19. Wang, Paul P. and Masaki Togai. "Sensitivity Analysis of Dynamic Systems Via Fuzzy Set Theory (I)," Fuzzy Mathematics, (An International Journal). Vol. 2, No. 2, 1982.
20. Wang, Paul P. and Masaki Togai. "Sensitivity Analysis of Dynamic Systems Via Fuzzy Set Theory (II)." "Fuzzy Mathematics, (An International Journal). Vol. 2, No. 3, 1982, pp 17-33.
21. Wang, Paul P. "Fuzzy Set theory and Robotics Research," Fuzzy Mathematics, Vol. 2, No. 4, 1982.
22. Wang, Paul P. "Analysis and Control of Fuzzy Dynamic Systems," Journal, Man Machine Studies, Vol. 23, April, 1985 Academic Press, New York.
23. Togai, Masaki, and Paul P. Wang. "A Study of Fuzzy Relations and Their Inverse Problem," International Journal on Control, 1985, North Hollander Publisher.
24. Togai, Masaki, and Paul P. Wang. "Analysis of a Fuzzy Dynamic System and Synthesis of its Optimal Controller," Journal of Control and Cybernetics. Quarterly, Vol. 13, No. 3, April, 1984. PWN. Polish Scientific Publishers.
25. Wang, Paul P., D.R. Sollbeger and M.P. Thint. "A Flexible Inspection System for Gauging Precision Industrial Parts," Robotics and Autonomous Systems 5, (1989) 165-171. Elsevier Science Publishers B.V. (North-Holland).

26. Wang, Paul P. and D. Sollberger. "Optimal Decision Threshold Selection in Edge Detection Algorithm," to IEEE Transaction on Pattern Analysis and Image Processing, 1989.
27. Wang, Paul P. "Information Sciences – Past, Present, and Future (First Issue)," Volumes 57 and 58, page 1, 1991. Information Sciences – An International Journal, Elsevier Science Publishing Company.
28. Thint, Marcus P., Paul P. Wang and Apostolos Dollas. "Nonparametric Graded Data Processing with Back-Error Propagation Networks," Information Sciences, An International Journal, North-Holland. Vol. 67, Numbers 1 and 2, January 1, 1993, pp. 167-187.
29. Thint, M., Paul P. Wang, and Rebman, J. (1992). "A Study of Back-Error Propagation Networks for a Trainable Tactile Pattern Classifier," International Journal of Engineering Application in Artificial Intelligent. Vol. 5, pp. 205-214.
30. Wang, Paul P. and C.Y. Wang. "Edge Detection With Fuzzy Sets," EPRI Publication, PB-86-135001, EPRI, 1986, 36 pages.
31. Wang, Paul P., and C.Y. Tyan. "Fuzzy Dynamic System and Fuzzy Linguistic Controller Classification," 1994, Automatica-A Journal of IFAC, The International Federation of Automatic Control, Vol. 30, No. 11, pp. 1769-1774.
32. Woodard, S.E., D.P. Garg, C.Y. Tyan and Paul P. Wang. "An Application of Fuzzy Control to a Gimballed Payload on a Space Platform," Published in Information Sciences, Vol. 4, No. 3, pp. 143-166, 1995.
33. Kuroki, N. and Paul P. Wang, 1996. "The Lower and Upper Approximations in a Fuzzy Group," Information Sciences Journal, Vol. 90, pp. 203-220, 1996.
34. Hillebrand, R., Paul P. Wang, and U. Gosele, 1996. "A Fuzzy Logic Approach to Edge Detection in Hrem Images of III-V Crystals," Information Sciences-Intelligent Systems, Vol. 93, pp. 321-338.
35. Tyan, C.Y., Paul P. Wang, S. Rangaswamy and D. Bahler. "A New Methodology of Fuzzy Constraint-Based Controller Design via Constraint Network Processing," IEEE Transactions on Fuzzy Systems, Vol. 4, No. 2, pp. 166-178, 1996.
36. Tyan, C.Y., Paul P. Wang and D. Bahler. "An Application on Intelligent Control Using Neural Network and Fuzzy Logic," Neurocomputing, Vol. 12, No. 4, pp. 345-363, 1996.
37. Tyan, C.Y., Paul P. Wang and D. Bahler. "The Design of an Adaptive Multiple Agent Fuzzy Constraint-Based Controller (MAFCC) for a Complex Hydraulic Systems," International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems, Vol. 4, No. 6, pp. 537-551, 1996.
38. Wang, Paul P. and F. Lai, 1996. "Fuzzy Methodology for Taxonomy and Knowledge Base Design," pp. 1-24, Journal of Systems Engineering and Electronics, Vol. 7, No. 2, 1996.

39. Bahler, D., S. Rangaswamy, Paul P. Wang and C.Y. Tyan. "A Generic Architecture for Multiple Agent Process Control Using Fuzzy Constraint Networks," Published in the book of New Developments in Intelligent Control Systems, IEEE Press, 1997.
40. Wang, Paul P. "Soft Modeling for A Certain Class of Intelligent and Complex Systems, Information Sciences: An International Journal, Vol. 123 (2000), Elsevier Sciences, Inc., pp. 149-159.
41. Ben Ghalia, Mounir, and Paul P. Wang. "Intelligent System to Support Judgmental Business Forecasting: The Case of Estimating Hotel Room Demand." IEEE Transactions on Fuzzy Systems, Vol. 8, No. 4, August 2000, pp. 380-397.
42. Rajopadhye, Mihir, Mounir Ben Ghalia, Paul P. Wang, Timothy Baker, Craig V. Eister, "Forecasting Uncertain Hotel Room Demand," Information Sciences Journal, Elsevier Sciences, Inc., February 17, 2001, pp. 1-11.
43. Chen, Li and Paul P. Wang, "Fuzzy Relation Equations: General Solutions and Computational Intelligence." Journal of Softcomputing, Springer Publishing Company (in press).

Following journal paper is under review

Jarvis, Erich (author) and co-authors: V. Anne Smith, Miriam V. Rivas, Kazuhiro Wada, Michael McElroy, Jing Yu, Tom V. Smulders, Piero Carnici, Yoshihide Hayashisaki, Fred Dietrich, Paul P. Wang, Simon Lin, "Integrating Songbird Brain," revision for Journal of Physiology.

Chapters in an Edited Book (all invited)

1. (One chapter) "Programming, Flow Algorithms and Transportation Networks," Published by Academia Sinica, in Lectures on Computer Science and Computer Systems, (1973).
2. Wang, Paul P. and M. Togai. "Sensitivity Analysis of Dynamic Systems Via Fuzzy Set Theory," in Recent Developments in Fuzzy Set and Possibility Theory, (Book, Ronald Yager, Editor), Pergamon Press, 1982.
3. Wang, Paul P. and Mark Benjamin Kadonoff. "Three Dimensional Object Recognition and Orientation Using a Gray-Scale Tactile Sensor," (Edited Book by MIT) International Computer Symposium, 1984, Volume I, pp. 617-623.
4. Ma, K.K., Jack Rebman and Paul P. Wang. "Automatic Recognition of Low Resolution Tactile Sensing Data Using Rapid Transformation," NATO-ASI Series F. (Computer & Systems Sciences) Vol. F11, Robotics and Artificial Intelligence. Edited by M. Brady, Los Angeles, Gerhardt and H.F. Davidson. Springer-Verlag, 1984, p. 159-170.
5. Wang, Paul P., M. Fatim. "Fuzzy Detection and Estimation," Communication Theory, Encyclopedia of Systems and Control, Pergamon Press, 1986, Oxford, England, 60 pages.
6. Wang, Paul P. "Experiment of Character Recognition Using Fuzzy Filters," one chapter in Fuzzy Sets: Theory and Applications of Policy Analysis and Information Systems, Plenum Publishing Corp., New York, 1981.

7. Wang, Paul P. "Fuzzy Logic Theory and Applications," Chapter 1 to Chapter 7, Vol I. Published by National Chiao Tung University, Hsin Chu, Taiwan, July 1991.
8. Wang, Paul P. "Fuzzy Logic Theory and Applications," Chapter 8 to Chapter 10, Vol. II. Published by National Chiao Tung University, Hsin Chu, Taiwan, July 1991.
9. Wang, Paul P. One chapter, "Advances in Fuzzy Sets, Possibility Theory, and Applications," Plenum Press, (N.Y. and London) Edited by Paul P. Wang, 1983, pp. 421.
10. Position paper by Paul P. Wang. "Fuzzy Set Theory and Robotics Research," Industrial Robotics Handbook.
11. Wang, Paul P., K. Ma and Jack Rebman. "Automatic Recognition of Low Resolution Tactile Sensing Data Using Rapid Transformation," NATO-ASI Series F. (Computer 8Z Systems Sciences), Vol. F11, Robotics and Artificial Intelligence. Edited by M. Brady, L.A. Gerhardt and H.F. Davidson. Springer-Verlag, 1984, pp. 159-170.
12. Wang, Paul P., D.R. Sollbeger and M.P. Thint. "A Flexible Inspection System for Gauging Precision Industrial Parts," Robotics and Autonomous Systems 5 (1989), 165-171. Elsevier Science Publishers B.V. (North-Holland).
13. Wang, Paul P. and D. Bahler. "Neural Fault Diagnosis and Fuzzy Fault Control for a Complex Linear Dynamic System," Published in the book series of Advances in Fuzzy Theory and Technology, Volume II, ISBN: 0-9643456-1-7, pp. 357-375, 1994.
14. Rangaswamy, S., D. Bahler, C.Y. Tyan and Paul P. Wang. "Fuzzy Constraint Networks for Process Control," Published in the book series of Advances in Fuzzy Theory and Technology, Volume III, ISBN: 0-9643456-2-5, pp. 183-208, 1995.
15. Wang, Paul P. and Fuji Lai. "Fuzzy Methodology for Taxonomy and Knowledge Base Design," Advances in Fuzzy Theory and Technology, Book Series, Volume III, ISBN: 0-9643456-2-5, pp. 341-375, 1995.
16. Dai, J. and Paul P. Wang. "Design of Fuzzy Controller According to the Parameters of a Feedback System," Advances in Fuzzy Theory and Technology, Vol. I, p. 331-374, Bookwrights Press, N.C. 1993.
17. Mounir Ben Ghalia and Paul P. Wang. "Nonlinear Fuzzy Modeling of Complex Systems: A System Theoretic Approach," Advances in Machine Intelligence and Soft-Computing, Vol. IV, 1997, pp. 323-338. ISBN: 0-9643456-3-3.
18. Wang, Paul P. and Fuji Lai, "Theory and Application of Fuzzy Methodology," Chapter 4 in the book edited by Hugh Cartwright entitled *Intelligent Data Analysis in Science*, Oxford Chemistry Masters, pp. 76-94, Cognitive Science, Oxford, England, 2000.
19. Wang, Paul P., *Computing With Words-Made Easy* in the book edited by Dan Ruan, E. E. Kerre, and P. D'hondt, FLINS, SCK.CEN, World Scientific Publisher, Singapore, New York, 30 pages, 2000.

20. Wang, Paul P. and Keith Sullivan, "Fuzzy Modeling and Decision for Healthcare System Operations and Treatment Protocols," Chapter 2 in the book edited by Klaus Peter Adhassnig University of Vienna, Osterreichische Computer Gesellschaft, May 2000.
21. Wang, Paul P., "Computing With Words: Introduction, Implications, and Applications," Chapter 1 in "*Computing With Words*" Wiley series on Intelligent Systems, 2001, John Wiley and Sons, New York, U.S.A., pp. 13-34.
22. Meystel, Alexander M. and Paul P. Wang, "Computing With Words: the Problems and Solutions," in "*Computing With Words*" Wiley series on Intelligent Systems, 2001, John Wiley and Sons, New York, U.S.A., pp. 69-88.

Videos

There are more than 100 videos made under Paul P. Wang's supervision. These videos include lectures presented during the FT&T (Fuzzy Theory and Technology Conferences (1st-8th) and the JCIS (Joint Conferences on Information Science (1st-6th)).

Refereed Conference and Symposium Proceedings Papers

1. Wang, Paul P. "The Use of Modern Concepts in Inventory Theory, Part I – Formulation and Characteristics, Part II – Design and Optimization," The 36th National Meeting of the Operations Research Society of America, Operations Research, Volume 17, Supplement 2, B., 254, (November 1969), Miami Beach, Florida, USA
2. Wang, Paul P. "The Aggregate Transfer Function Matrix for Large Scale Linear Stochastic System," Conference Record of Third Asilomar Conference on Circuits and Systems, (December 1969), Pacific Grove, California, USA pp. 639-644.
3. Wang, Paul P. and T. Ibragim Zade. "Computer Algorithms for Multiple Graph Identification," Proceedings of the 1972 Institute of Electrical and Electronics Engineers Conference on Decision and Control (including the 11th Symposium on Adaptive Processes), (December 1972) pp. 426-430.
4. Hodgkiss, William S. Jr. and Paul P. Wang. "Feature Extraction on a Finite Set of Binary Patterns," Proceedings, International Symposium on Computers and Chinese Input-Output Systems, Academia Sinica, China (August 1973), pp. 183-194.
5. Wang, Paul P. and James E. Lenz, Jr. "Classification and Modeling of Stochastic Linear Systems with Engineering Applications," Modeling and Simulation, Volume 4, Instrument Society of America and University of Pittsburgh (1973), pp. 22-26.
6. Wang, Paul P. "The Topological Analysis, Classification, Encoding of Chinese Characters for Digital Computer Interfacing – Part I," Proceedings, International Symposium on Computers and Chinese Input/Output Systems, Academia Sinica, China (August 1973), pp. 417-439.
7. Wang, Paul P. "The Topological Analysis, Classification, and Encoding of Chinese Characters for Digital Computer Interfacing – Part II," Proceedings, International Joint Conference on Pattern Recognition, Washington, D.C. (1973), IEEE, PRS, OSA, ACM, IFP, p. 180-186.

8. Wang, Paul P. and R.C. Burns. "Time Series Analysis of Sferics Rate Data Associated with Severe Weather Patterns" (invited paper, Modeling and Simulation, Volume 7, Instrument Society of America and University of Pittsburgh (1976), edited by Vogt and Mickle.
9. Wang, Paul P. and Richard C. Burns. "Classification and Machine Recognition of Severe Weather Patterns," Proceedings of the Third International Joint Conference on Pattern Recognition, Nov. 1976. Published by IEEE Computer Society, ACM, OSA, PRS, SPIE, IFIP, IEEE, SMC Society and Information Theory Group.
10. Wang, Paul P. "Machine Recognition of Quality Patterns of an Industrial Process," Conferencia Internacional Y Exposicion Sobre Investigacion Desarrollo Y Aplicacion de La Ingenieria Electrica Y Electronica, Memoria, Medico City, 1976 (16 pages).
11. Wang, Paul P., Masaki Togai and David Molter. "Automated Software Program Software Program for Handling System Blocks," Proceedings of IEEE 1978 Cybernetics and Society Conference, Vol. II & III, pp. 1045-1047, Nov. 1978, Kyoto, Japan.
12. Wang, Paul P., Louis R. Chow and S.K. Chang, Co-editors. Proceedings of the First International Symposium on Policy Analysis and Information Systems, Duke University, University of Illinois and Tamkang College (June, 1979).
13. Wang, Paul P. (Guest Editor). "Special Issue on Energy," International Journal of Policy Analysis and Information Systems, July 15, 1978, Volume 2, No. 2.
14. Wang, Paul P. and Everett H. Ellinwood, Jr., M.D. "Experiments on Behavioral Patterns of Rats Using Pattern Recognition Techniques," Proceedings of the International Conference on Cybernetics and Society. IEEE publication 79CH1424-1 SMC. Oct. 1979, pp. 914-917, Denver.
15. Wang, Paul P. and Everett H. Ellinwood, Jr. "Recognition of Behavioral Patterns of Rats Induced by Chlorpromazine-Amphetamine Drug Interaction, Part I," Frontiers of Engineering in Health Care, IEEE Engineering in Medicine and Biology Society First Annual Conference, IEEE Publication 79CH1440-7, pp. 114-119.
16. Wang, Paul P. and Everett H. Ellinwood, Jr., M.D. "Recognition of Behavioral Patterns of Rats Induced by Chlorpromazine-Amphetamine Drug Interaction, Part II," Frontiers of Engineering in Health Care, IEEE Engineering in Medicine and Biology Society First Annual Conference, IEEE Publication 79CH1440-7, pp. 120-125.
17. Wang, Paul P. and Jack Rebman. "Machine Intelligence Through Touch Sensing," Proceedings of the First Annual International Robot Conference, June 14-16, 1983, pp. 197-201.
18. Wang, Paul P. and Mark Benjamin Kadonoff. "Three Dimensional Object Recognition and Orientation Using a Cray-Scale Tactile Sensor," Proceedings, International Computer Symposium, 1984, Volume I, pp. 617-623.
19. Wang, Paul P., S. Buchner, C. Denning, and Y. Sorrell. "Modeling and Simulation of a Thermal Storage System," Proceedings, International Conference on Cybernetics and Society, Oct. 1981, ISSN 0360-8913 (IEEE Publications).

20. Wang, Paul P. and M. Thint. "Feature Extraction and Clustering of Tactile Impressions with Connectionist Models," Proceedings of Seventh Annual Conference on Machine Learning, June 1990 (9 pages).
21. Wang, Paul P. "Information Sciences – Past, Present, and Future (First Issue)," Volumes 57 and 58, page 1, 1991. Information Sciences – An International Journal, Elsevier Science Publishing Co., Inc.
22. Wang, Paul P., Marcus P. Thint and Masaki Togai. "Generating Fuzzy Rules and Membership Values Via Clustering Concepts," submitted to IEEE International Conference on Fuzzy Systems, 1992, San Diego, CA.
23. Wang, Paul P., Dale E. Schneider and Masaki Togai. "Design of a Fuzzy Logic Controller for a Target Tracking System," submitted to IEEE International Conference on Fuzzy Systems, 1992, San Diego, CA. Pp. 1131-1138.
24. Wang, Paul P. "First International Conference on Fuzzy Theory and Technology, Minicourses, lecture notes. Director and Editor, Paul P. Wang, FT&T, 1992. 400 pages.
25. Wang, Paul P. and Ching-Yu Tyan. "Fuzzy Dynamic Systems & Fuzzy Linguistic Controller Classification," Proceedings, 12th World Congress International Federation of Automatic Control, Sydney, Australia, 18-23 July 1993. 23 pages.
26. Wang, Paul P. and C.Y. Tyan. "Application and Classification of Fuzzy Dynamic System and Linguistic Controller with Examples Illustrated" (Invited Paper), Proc. SPIE International Symposium on Optical Tools for Manufacturing and Advanced Automation Applications of Fuzzy Logic Technology, Vol. 2061, pp. 92-111, Boston, MA, Sept. 1993.
27. Tyan, C.Y. and Paul P. Wang. "Design of Fuzzy Logic Controller for Tank Water Level Control System," Proc. 2nd International Conf. On Fuzzy Theory & Technology, pp. 185-188, Durham, NC, Oct. 1993.
28. Tyan, C.Y. and Paul P. Wang. "Rule-Based Fault Diagnosis/Detection Expert System for Aircraft Flight Control system," Proc. 2nd International Conf. On Fuzzy Theory & Technology, pp. 17-21, Durham, NC, Oct. 1993.
29. Woodard, S., C.Y. Tyan and Paul P. Wang. "Fuzzy Logic Control of a Gimballed Payload on space Platform," Proc. 2nd International Conf. On Fuzzy Theory & Technology, p.p. 179-181, Durham, NC Oct. 1993.
30. Dai, J. and Paul P. Wang. "Intelligent Control of a Complex System," Proc. 2nd International Conference on Fuzzy Theory & Technology, pp. 214-217, Durham, NC Oct. 1993.
31. Wang, Paul P., C.Y. Tyan and K. Kaneda. "A Global Review of Fuzzy Dynamic System Fuzzy Linguistic Controller" (Invited Paper), Proc. ISCIS VIII – The Eighth International Symposium on Computer and Information Sciences, pp. 217-237, Istanbul, Turkey, Nov. 1993.

32. Wang, Paul P. and C.Y. Tyan. "Fuzzy Dynamic System and Fuzzy Linguistic Controller Classification," *Automatica – A journal of IFAC, the International Federation of Automatic Control*, No. 093-05-0504, Nov. 1994.
33. Tyan, C.Y., Paul P. Wang and D. Bahler. "Process Fault Diagnosis for a Magnetic Levitation Control system Based on Artificial Neural Network," Published in the Proceedings of ISMIS'94 – Eighth International Symposium on Methodologies for Intelligent Systems, pp. 139-152, Charlotte, NC, Oct. 1994.
34. Woodard, S.E., D.P. Garg, C.Y. Tyan and Paul P. Wang. "Fuzzy Logic Control of a Cimballed Payload on a Space Platform," Published in the Proceedings of JCIS'94 – Joint Conference on Information Sciences, pp. 200-203, Pinehurst, NC, Nov. 1994.
35. Tyan, C.Y., Paul P. Wang, S. Rangaswamy and D. Bahler. "The Design of a Fuzzy Constraint based Controller for a Dynamic Control System," Proc. Of FUZZ-IEE/IFES'95 – The International Joint Conference of the 4th IEEE Conference on Fuzzy Systems and the 2nd Fuzzy Engineering Symposium, pp. 1009-1016, Yokohama, Japan, March 1995.
36. Rangaswamy, S., D. Bahler, C.Y. Tyan and Paul P. Wang. "Fuzzy Constraint Network for Process Control," Proc. Of FUZZ-IEEE/IFES'95 – The International Joint Conference of the 4th IEEE Conference on Fuzzy Systems and the 2nd Fuzzy Engineering Symposium, p. 1017-1024, Yokohama, Japan, March 1995.
37. Tyan, C.Y., Paul P. Wang and D. Bahler. "Neural Fault Diagnosis and Fuzzy Fault Control for a Complex Linear Dynamic System," Proc. Of FUZZ-IEEE/IFES'95 – The International Joint Conference of the 4th IEEE Conference on Fuzzy Systems and the 2nd Fuzzy Engineering Symposium, p. 1001-1008, Yokohama, Japan, March 1995.
38. Vaida, D. and Paul P. Wang. "Fuzzy Theory and Technology – Notes on Some Priorities," Proc. Of CIFT'94, Dip. Informatica e studi Aziendall, Universita Degli Studi Di rento, Editor: Mario Fedrizzi, June 1-3, 1994.
39. Kaneda, K. and Paul P. Wang. "Camcorder Auto Focus Design Using Fuzzy Logic," one chapter in a Fuzzy Book (Edited by Prof. Li Hua), Kluwer Academic Publishers, 1995.
40. Tyan, C.T., Paul P. Wang, S. Rangaswamy and D. Bahler. "Intelligent Control Based on Neural Fault Diagnosis and Fuzzy Control," Published in the Proceedings of IFSA '95 – Sixth International Fuzzy Systems Association World Congress, pp. 3 93-3 96, Sao Paulo, Brazil, 1995.
41. Tyan, C.T., Paul P. Wang and D. Bahler. "The Design of an Adaptive Multiple Agent Constraint-Based Controller for a Complex Hydraulic System," Proceedings of International Conference of CESA/IFIS/SOFT'95 on Fuzzy Theory and Applications, pp. 15-21, Taipei, Taiwan, 1995.
42. Wang, Paul P. and Jing Dai. "Intelligent Control of a Complex System," Proceedings of 2nd International Conference on Fuzzy Theory & Technology, October 13-16, 1993, Durham, North Carolina, USA, pp. 214-217.

43. Tyan, C.Y. and Paul P. Wang. "Image Processing – Enhancement, Filtering, and Edge Detection, Using the Fuzzy Logic Approach," Published in the Proceedings of FUZZ-IEEE'93 – 2nd IEEE Conference on Fuzzy Systems, pp. 600-605, San Francisco, CA 1993.
44. Rajopadhye, Mihir, Mounir Ben Ghalia and Paul P. Wang. "Forecasting Uncertain Hotel Room Demand," Proceedings of the American Control Conference, San Diego, CA, June 1999, pp. 1925-1929.
45. Wang, Paul P., Keith Sullivan, Kiranmai Naidu, and Yang Yi, "Research on Medical Informatics and Telemedicine," Proceedings of the Fifth Joint Conference on Information Sciences, Vol. II, Taj Mahal, Atlantic City, USA, organized by AIM (Association for Intelligent Machinery), pp. 827-828.
46. Naidu, Kiranmai, Keith Sullivan, Paul P. Wang, and Yang Yi, "Managing Personnel through Staff Scheduling Algorithms," Proceedings of the Fifth Joint Conference on Information Sciences, Vol. II, Taj Mahal, Atlantic City, USA, organized by AIM, pp. 829-835. February 27-March 3, 2000.
47. Yang, Yi, Keith Sullivan, Paul P. Wang, and Kiranmai Naidu, "Applications of Computer Simulation in Medical Scheduling," Proceedings of the Fifth Joint Conference on Information Sciences, Vol. II, Taj Mahal, Atlantic City, USA, organized by AIM, pp. 836-842, February 27-March 3, 2000.
48. Wang, Paul P., "Machine Intelligence Ranking," Proceedings of the Measuring the Performance and Intelligence of Systems," Sponsored by NIST Special Publication 970, September 2001, sponsored by: NIST, DARPA, IEEE, NASA, US Department of Commerce.

Partial Listing of Significant Final Reports for Grant Contractor

1. Wang, Paul P. Electrical Load and Energy Management, N.C. Department of Community College, State Government, 137 pages with color slide package, 1979. Energy Conservation and Production Act. PLN94-385. N.C. DOE.
2. Wang, Paul P. and R.C. Burns. "Computer Experiments of Functional Classification of Older Americans Based Upon Social Resources Data," TR-75-02, prepared for the Center of Aging and Human Development of Duke University under H.E.W. Grant 93-P-75A21429, (June 1975).
3. Wang, Paul P., James E. Lenz, Jr. "Classification and Modeling of Stochastic Linear Systems with Engineering Application," Modeling and Simulation, Volume 4, Instrument Society of America and University of Pittsburgh (1973), pp. 22-26.
4. Wang, Paul P. and M. Thint. "Recognition of Tactile Patterns via Neural Network," Proceedings of IJCNN. International Joint Conference on Neural Networks, IEEE and the International Neural Network Society, San Diego, CA, July 1990, 32 pages.
5. Wang, Paul P., D. Sollberger. "Optimal Decision Threshold Selection in Edge Detection Algorithm," Submitted to U.S. Navy and Microwave Laboratory, 1989.

6. Wang, Paul P. and Sam Wang. "Bibliography on Fuzzy Control," 1994. Prepared for Association for Machine Intelligence.
7. Wang, Paul P., Y.N. Patt and C.R. Baker, Co-editors. Proceedings of the 5th Annual Southeastern SYM, Duke and U.N.C., (March 1973).
8. Wang, Paul P. and R.T. George. "Bibliography on Tornado Research," TR-74-1, prepared for Goddard Space Flight Center, NASA under Grant NSG-5020, 24 pages, (August 1974).
9. Wang, Paul P. and R.C. Burns. "Computer Experiments of Functional Classification of Older Americans Based Upon Social Resources Data," TR-75-02, prepared for the Center of Aging and Human Development of Duke University under H.E.W. Grant 93-P-75A21429, (June 1975).
10. Wang, Paul P. and T.M. Espy (1991). "The Design of a Fuzzy Controller for a Three-phase Induction Motor," Department of Electrical Engineering, Duke University, Submitted to U.S. EPA, Research Triangle Park.
11. Wang, Paul P. "An Evaluation of the Impact of Multiple Fractional Delay Elements on Digital Control Systems," Technical Report TR-76-04 (36 pages), prepared for Electronics and Space Division of Emerson Electric Co., St. Louis, and National Science Foundation, June 1976.
12. Wang, Paul P. and C.Y. Wang. "Edge Detection with Fuzzy Sets," PB Report, PB-86-135001 EPRI, 1986. 36 pages.
13. Wang, Paul P. and Mounir Ben Ghalia. "Business Demand Forecasting Methodology Developed for Holiday Inn Worldwide Headquarter in Atlanta City, GA, USA." 4 years contract, final report, 1998.

Journal, Editorial, and Magazine Articles

1. Paul P. Wang has been an editor-in-chief of Information Science-An International Journal published by Elsevier Publishing Co. for 18 years. Since 1998, the journal published 14 issues per year, more than one issue per month
2. Paul P. Wang also is the editor-in-chief of JCIS, Joint Conference on Information Science which publishes more than 1,500 pages per year. The latest FT&T is its ninth conference. The latest conference proceedings of JCIS are the 6th JCIS.
3. Gattiker, James R., Jason T. L. Wang, Paul P. Wang, "Bioinformatics" (editorial), Information Sciences, Volume 139, Issues 1-2, November 2001, pp. 1-2.
4. Wang, Paul P., "Frontiers in Evolutionary Algorithms," (editorial) Volume 122, Issues 2-4, February 2000, page 91.
5. Wang, Paul P., Foreword, pp. iii-v, in the book *Fuzzy Graphs and Fuzzy Hypergraphs*, by John N. Mordeson and P. S. Nair, Physica-Verlag 2001.

6. Wu, Cathy H., Paul P. Wang, Jason T. L. Wang (co-editors), Proceedings, Computational Biology and Genome Informatics System and Technology (CBGIST) 2001, 287 pp. ISBN 0-9707890-0-9 (Paul P. Wang, Forward and co-editor, Preface.
7. Wang, Paul P., "Chinese Computing With Words," Journal of Harbin Institute of Technology, Volume 33, Issue 6, pp. 870-871, December 2001.