

List of publications of Dr. Nikhil R. Pal

Books

1. **Advanced Techniques in Data mining and Knowledge discovery**, *Springer Verlag*, (co-editor L. C. Jain), 2005.
2. **Neural Information Processing- ICONIP 2004**, Springer Verlag, LNCS 3316, (Co-editor N. Kasabov, R Mudi, S. Pal and S. Parui), 2004.
3. **Advances in Soft Computing - AFSS 2002**, *Springer Verlag*, LNAI 2275, 2002 (Co-editor M. Sugeno)
4. **Pattern Recognition in Soft Computing Paradigm**, *World Scientific*, FLSI Vol. 2, 2001 (Editor)
5. **Fuzzy Models and Algorithms for Pattern Recognition and Image Processing**, *Kluwer Academic Publisher*, 1999, (co-authored with J. C. Bezdek, J. M. Keller and R. Krishnapuram)
6. **Advances in Pattern Recognition and Digital Techniques- ICAPRDT'99**, *Narosa Publishing Co.*, India, 1999 (Co-editors A. K. De and J. Das)

Journal publications:

1. Tsai Y-S, Aguan K, Pal NR, Chung I-F (2011), Identification of Single- and Multiple-Class Specific Signature Genes from Gene Expression Profiles by Group Marker Index, *PLoS ONE* 6(9): e24259. doi:10.1371/journal.pone.0024259
2. Y-C Chen , K Aguan, C-W Yang, Y-T Wang, N R Pal, Discovery of Protein Phosphorylation Motifs through Exploratory Data Analysis. *PLoS ONE* 6(5): e20025. doi:10.1371/journal.pone.0020025, 2011.
3. G. Beliakov; Humberto Bustince; D. P. Goswami; U. K. Mukherjee; N. R. Pal, On Averaging Operators for Atanassov's Intuitionistic Fuzzy Sets, *Information Sciences*, 181, 6, pp 11161124, March, 2011, doi:10.1016/j.ins.2010.11.024
4. K-L. Lin, C-T. Lin, and N. R. Pal Incremental Mountain Clustering Method to Find Building Blocks for Constructing Structures of Proteins, *IEEE Transactions on NanoBioscience*, Vol. 9, No. 4 , pp 278-288, December 2010.
5. A. Saxena, N. R. Pal and M. Vora, Evolutionary Methods for Unsupervised Feature Selection Using Sammons Stress Function, *Fuzzy Information and Engineering - An International Journal*, Vol. 2, 3, pp 229-247, 2010, DOI 10.1007/s12543-010-0047-4.
6. P. Ghanty and N. R. Pal, Prediction of Protein Folds : Extraction of New Features, Dimensionality Reduction, and Fusion of Heterogeneous Classifiers, *IEEE Transactions on NanoBioscience*, 2009 Vol. 8(1, pp 100-110, D.O.I 10.1109/TNB.2009.2016488
7. P. Ghanty, S. Paul and N. R. Pal, NEUROSVM: An Architecture to Reduce the Effect of the Choice of Kernel on the Performance of SVM, *Jour of Machine Learning Research*, 10, 2009, pp 591-622.
8. Yu-Shuen Tsai, Chin-Teng Lin, I-Fang Chung, Nikhil R. Pal and George C. Tseng, Discovery of Dominant and Dormant Genes from Expression Data Using a Novel Generalization of SNR for Multi-class Problems, *BMC Bioinformatics*, 2008, 9:425doi:10.1186/1471-2105-9-425
9. N. R. Pal and S. Saha, Simultaneous structure identification and fuzzy rule generation for Takagi-Sugeno models, *IEEE Trans. Syst., Man and Cybern. -B*, Volume: 38, Issue: 6, pp: 1626-1638, 2008, DOI : 10.1109/TSMCB.2008.2006367 .
10. N. R. Pal, C. Y. Chuang, L. W. Ko, C. F. Chao, T. P. Jung, S. F. Liang, and C. T. Lin, EEG-based Subject- and Session-independent Drowsiness Detection: An Unsupervised Approach, *EURASIP Journal on Advances in Signal Processing*, Vol. 2008 (2008), Article ID 519480, doi:10.1155/2008/519480

11. K. Lin, C. T. Lin, N. R. Pal, and S. Ojha, Construction of Protein 3-D Structures Using a Structural Variant of Mountain Clustering Method, *IEEE Engineering and Medicine in Biology Magazine*, JULY/AUGUST 2009, pp 38-44, 2009.
12. N. R. Pal, A. Sharma and S. Sanadhya, Deriving meaningful rules from gene expression data for classification, *Journal of Intelligent & Fuzzy Systems*, Vol. 19, No. 3, pp 171-180, 2008
13. P. Ghanty, M. Vasudevan, D.P. Mukherjee, N.R. Pal, N. Chandrasekhar, V. Maduraimuthu, A.K. Bhaduri, P. Barat, and Baldev Raj, An Artificial Neural Network Approach for Estimating Weld Bead Width and Depth of Penetration from Infrared Thermal Image of Weld Pool, *Science and Technology of Welding and Joining*, Vol. 13(4) pp 395-401, 2008.
14. P. Ghanty, S. Paul, A. Roy, D. P. Mukherjee, N. R. Pal, M. Vasudevan, H. Kumar, and A.K. Bhaduri, A Fuzzy Rule Based Approach for Predicting Weld Bead Geometry in Gas Tungsten Arc Welding, *Science and Technology of Welding and Joining*, VOL 13, NO 2, pp 167-175, 2008.
15. D. Chakraborty and N. R. Pal, Selecting Useful Groups of Features in a Connectionist Framework, *IEEE Transactions on Neural Networks*, vol 19, no 3, pp. 381-396, 2008.
16. Nikhil R. Pal, B. Bhowmick, S. K. Patel, S. Pal and J. Das, A Multi-Stage Neural Network Aided System for Detection of Microcalcifications in Digitized Mammograms, *Neurocomputing*, Vol. 71, pp 2625-2634, 2008, DOI 10.1016/j.neucom.2007.06.015
17. P. Ghanty, S. Paul, D. P. Mukherjee, M. Vasudevan, N. R. Pal and A.K. Bhaduri, Modelling Weld Bead Geometry Using Neural Networks for GTAW of an Austenitic Stainless Steel, *Science and Technology of Welding and Joining*, vol. 12, no. 7, pp. 649-658, Oct 2007.
18. A. Laha, B. Chanda and N. R. Pal, Fast codebook searching in a SOM-based vector quantizer for image compression, *Signal Image and Video Processing*, (DOI 10.1007/s11760-007-0034-3) Vol. 2, No. 1, pp 39-49, 2007
19. S. S. Bagui, S. C. Bagui, N. R. Pal and M. A. Matin, Comparison between k-NN and k-RNN classification rules: A monte carlo simulation study, *Journal of Statistical Research*, 41(1), 69-79, 2007.
20. N. R. Pal, S. Sanadhya and A. Sharma, Computation of consensus hydrophobicity scales with self-organizing maps and fuzzy clustering along with applications to protein fold prediction, *Journal of Neural, Parallel and Scientific Computation*, Vol. 15, No. 1, pp 75-90, 2007
21. N. R. Pal, K. Aguan, A. Sharma and S. Amari, Discovering biomarkers from gene expression data for predicting cancer subgroups using neural networks and relational fuzzy clustering, *BMC Bioinformatics*, 8:5, 2007.
22. J. M. Keller, J C. Bezdek, M Popescu, N R Pal, J A. Mitchell, and J Huband, Gene ontology similarity measures based on linear order statistics, *International Journal of Uncertainty, Fuzziness and Knowledge-based Systems* Vol. 14, No. 6 (2006), pp. 639 - 661.
23. N. R. Pal, A. K. Mandal, Srimanta Pal, J. Das, and V. Lakshmanan, Fuzzy Rule Based Approach for Detection of Bounded Weak Echo Regions in Radar Images, *Journal of Applied Meteorology and Climatology*, Vol. 45, No. 9, pp 1304-1312, 2006.
24. A. Laha, N. R. Pal and J. Das, Land cover classification using fuzzy rules and aggregation of contextual information through evidence theory, *IEEE Trans. Geoscience and Remote Sensing*, Vol. 24, No. 6, pp 1633-1641, 2006.
25. N. R. Pal, A. Sharma, S. Sanadhya and Karmeshu, Identifying Marker Genes from Gene Expression Data in a Neural Framework through Online Feature Analysis, *International Journal of Intelligent Systems*, Volume 21, Issue 4, April 2006, Pp: 453-467
26. A. Ghosh, N. R. Pal and J. Das, A fuzzy rule based approach to cloud cover estimation, *Remote Sensing of Environment* Volume 100, Issue 4, 28 February 2006, Pages 531-549.
27. S. Pal, S. Bhattacharya, and N R. Pal, A novel connectionist framework for computation of an approximate convex hull of a set of planer points, circles and ellipses *International Journal of Neural Systems*, Vol. 16, No. 1, pp 15-28, 2006.

28. N R Pal, James M. Keller, M Popescu, J C. Bezdek, J A. Mitchell, and J Huband, Gene Ontology-based Knowledge Discovery Through Fuzzy Cluster Analysis, *Neural, Parallel and Scientific Computations*, pp 337-362, vol 13, 2005.
29. D. Muni, N. R. Pal and J. Das, Genetic Programming for Simultaneous Feature Selection and Classifier Design, *IEEE Trans. Systems, Man and Cybern - B*, Vol. 36, pp 106-117, Feb. 2006.
30. N. R. Pal, K. Pal, J. Keller and J. Bezdek, A Possibilistic Fuzzy c- Means Clustering Algorithm, *IEEE Transactions on Fuzzy Systems*, Vol. 13, No. 4, pp 517-530, 2005.
31. N. R. Pal, A. Laha and J. Das, Designing fuzzy rule based classifier using self-organizing feature map for analysis of multispectral satellite images, *International Journal of Remote Sensing*, Vol. 26, No. 10, 22192240, May 2005,
32. K. Pal, N. R. Pal, J. Keller and J. Bezdek, Relational Mountain (Density) clustering method and web log analysis, *International Journal of Intelligent Systems*, Vol 20, No. 3, pp 375-392, 2005
33. S. Pal, N. R. Pal and A. Dutta, A multilayer Dynamic Neural Network for Convex-Hull Computation, *Neural, Parallel and Scientific Computations*, Vol. 12, pp 505-520, 2004.
34. A. Laha, N. R. Pal and B. Chanda, Design of vector quantizer for image processing using self-organizing feature map and surface fitting, *IEEE Trans. Image Processing*, Vol. 13, No. 10, pp 1291-1303, 2004
35. N. R. Pal, R. Mudi, K. Pal, and D. Patranabish, Rule extraction to exploratory data analysis for self-tuning fuzzy controllers, *Int. Jour. Fuzzy Systems*, Vol 6, No. 2, pp 71-80, 2004
36. D. Muni, N. R. Pal and J. Das, A novel approach to design classifiers using genetic programming, *IEEE Trans. on Evolutionary Computation*, Vol 8, No. 2, pp 183- 196, 2004
37. N R Pal, S Pal, J Das and K. Majumder, SOFM-MLP : A Hybrid Neural Network for Atmospheric Temperature Prediction, *IEEE Trans. Geoscience and Remote Sensing*, Vol. 41, No. 12, 2783-2791, 2003
38. D. Chakraborty and N. R. Pal, A neuro-fuzzy scheme for simultaneous feature selection and fuzzy rule-based classification, *IEEE Trans. Neural Networks*, Vol. 15, No. 1, pp 110-123, 2004.
39. C. D. Huang, C. T. Lin and N. R. Pal, Hierarchical learning architecture with automatic feature selection for multiclass protein fold classification, *IEEE Trans. on Nanobioscience*, Vol. 2, No. 4, pp 221- 232, 2003.
40. S. Pal and N. R. Pal, Connectionist models for approximate solutions of non-linear equations in one variable, *Neural, Parallel and Scientific Computation*, Vol. 11, pp 185-206, 2003.
41. T. Pal and N. R. Pal, SOGARG : A self-organized genetic algorithm based rule generation scheme for fuzzy controllers, *IEEE Trans. Evolutionary Computation*, Vol. 7, No. 4, pp 397-415, 2003.
42. N. R. Pal and R. K. Mudi, Computational intelligence for decision-making systems., *Int. Jour. Intell. Systems*, Vol. 18, No. 5, 483-486, 2003.
43. T. Pal, N. R. Pal and M. Pal, Learning Fuzzy Rules for Controllers with Genetic Algorithms *Int. Jour. Intell. Systems*, Vol. 18, No. 5, 2003, 569-592.
44. D. Chakraborty and N. R. Pal, A novel training scheme for multilayered perceptrons to realize proper generalization and incremental learning , *IEEE Trans. Neural Networks*, Vol. 14, No. 1, pp 1-14, 2003.
45. S. Bagui, S. Bagui, K. Pal, and N. R. Pal, Breast cancer detection using rank-nearest classification rules, *Pattern recognition*, Vol. 36, pp 25-34, 2003.
46. N. R. Pal and Srimanta Pal, Computational Intelligence for Pattern Recognition, *Int. Jour. Patt. Recogn. Artificial Intell.*, Vol. 16, No. 7, 773-779, 2002.
47. S. Raha, N. R. Pal and K. S. Ray, Similarity based approximate reasoning : methodology and application, *IEEE Trans. Systems, Man and Cybern - A*, Vol 32, No. 4, pp 541-547, 2002.

48. N. R. Pal and J. C. Bezdek, Complexity reduction for large image processing, *IEEE Trans. on Sys., Man and Cybern.- B*, Vol 32, No. 5, pp 598-611, 2002.
49. K. Pal, R. Mudi and N. R. Pal, A new scheme for fuzzy rule based system identification and its application to self-tuning fuzzy controllers, *IEEE Trans. Systems Man and Cybern - B*, Volume 32, No. 4, pp 470-482, 2002.
50. N. R. Pal, E. Vijay Kumar and G. Mandal, Fuzzy logic approaches to structure preserving dimensionality reduction, *IEEE Trans. Fuzzy Systems* Vol 10, No. 3, pp 277 -286, 2002.
51. S. Chakraborty, K. Pal and N. R. Pal, A neuro-fuzzy framework for inferencing, *Neural Networks*, Vol. 15, pp 247-261, 2002.
52. S. Pal, A. Dutta and N. R. Pal, A multilayer self-organizing model for convex hull computation, *IEEE Trans. Neural Networks*, Vol. 12 (6), pp 1341-1347, 2001.
53. A. Laha and N. R. Pal, Some Novel Classifiers Designed Using Prototypes Extracted by a New Scheme Based on Self-Organizing Feature Map, *IEEE Trans. on Sys., Man and Cybern.- B*, Vol. 31, No. 6, pp 881-890, 2001
54. K. Pal and N. R. Pal, Connectionist models in material science : characterization of sorption properties of hydrogen storage materials, *Neural Computing & Applications*, Vol. 10, No. 4, pp 195-205, 2001.
55. N. R. Pal, T. Cahoon, J. C. Bezdek, and K. Pal, A New Approach To Target Recognition for LADAR Data, *IEEE Trans. Fuzzy Systems*, Vol. 9, No. 1, pp 44-52, 2001.
56. N. R. Pal and S. Ghosh, Some Classification Algorithms Integrating Dempster-Shafer Theory of Evidence with the Rank Nearest Neighbor Rules, *IEEE Trans. Syst., Man & Cybern.- A*, Vol. 31, No. 1, pp 59-66, 2001.
57. D. Chakraborty and N. R. Pal, Integrated feature analysis and fuzzy rule based system identification in a neuro-fuzzy paradigm, *IEEE Trans. Systems Man and Cybern - B*, Vol. 31, No. 3, 391-400, 2001
58. R. Mudi and N. R. Pal, A note on fuzzy PI-type controller with resetting action, *Fuzzy Sets and Systems*, Vol 121, No 1, pp 149-159, 2001.
59. N. R. Pal and S. Chakraborty, Fuzzy Rule Extraction from ID3 type Decision Trees for Real Data, *IEEE Trans. Systems, Man and Cybern - Part B*, Vol. 31, No. 5, pp 745-754, 2001
60. N. R. Pal and A. Laha, A multi-prototype classifier and its application to remotely sensed image analysis, *Australian Jour. Intell. Infor Processing Systems*, Vol. 6, No. 2, pp 110-118, 2000.
61. R. Mudi and N. R. Pal, A self-tuning fuzzy PI controller, *Fuzzy Sets and Systems*, Vol. 115, No. 2, pp 327-338, 2000.
62. N. R. Pal and D. Chakraborty, Mountain and Subtractive clustering methods : Improvements and Generalizations, *Int. Jour. Intell. Systems*, Vol. 15, No. 4, pp 329-341, 2000.
63. S. Biswas and N. R. Pal, On hierarchical segmentation for image compression, *Pattern Recognition Letter*, Vol. 21, No. 2, pp 131 - 144, 2000.
64. A. Dutta, S. Pal and N. R. Pal, A connectionist model for convex hull, *Neural Networks*, Vol. 13, No. 3, pp 377-384, 2000.
65. A. Laha and N. R. Pal, Dynamic generation of Prototypes with Self-Organizing Feature Maps for classifier design, *Pattern Recognition*, Vol. 34:2, pp. 315-321, 2001.
66. R. Mudi and N. R. Pal, A robust self-tuning scheme for PI and PD type fuzzy controllers, *IEEE Trans. Fuzzy Systems*, Vol. 7, No. 1, pp 2-16, 1999.
67. N. R. Pal, Soft Computing for Pattern Recognition, *Fuzzy Sets and Systems*, Vol. 103, pp 197-200, 1999.
68. N. R. Pal, Soft Computing for Feature Analysis, *Fuzzy Sets and Systems*, Vol. 103, pp 201-221, 1999.

69. N. R. Pal, On quantification of different facets of uncertainty, *Fuzzy Sets and Systems*, Vol. 107, No. 1, pp 81-91, 1999.
70. N. R. Pal and T. Pal, On rule pruning using fuzzy neural networks, *Fuzzy Sets and Systems*, Vol. 106, No. 3, pp 335-347, 1999.
71. N. R. Pal and K. Pal, Handling of inconsistent rules with an extended model of fuzzy controller, *Jour. Intell. and Fuzzy Sys.*, Vol. 7, pp 55-73, 1999.
72. N. R. Pal, G. Mandal and E. Vijay Kumar, A note on the fuzzy neural network of Kwan and Cai, *IEEE Trans. Fuzzy Systems*, Vol. 7, No. 4, pp 479-480, 1999.
73. N. R. Pal and C. Bose, Context sensitive inferencing and reinforcement type learning algorithms for fuzzy logic controllers, *Jour. Knowledge Based Intell. Engg. Sys.*, Vol. 3, No. 4, , pp 230-239, 1999
74. J. C. Bezdek, J. M. Keller, R. Krishnapuram, L. I. Kuncheva, and N. R. Pal, Will the real Iris data please stand up?, *IEEE Trans. Fuzzy Systems*, Vol. 7, No. 3, pp 368-369, 1999.
75. K. Pal and N. R. Pal, A neuro-fuzzy system for inferencing, *Int. Journal of Intell. Systems*, Vol. 14, no. 11, pp 1155-1182, 1999.
76. J. C. Bezdek and N. R. Pal, Some new indices of cluster validity, *IEEE Trans. Syst., Man and Cybern.*, Vol. 28, No. 3, pp 301-315, 1998.
77. N. R. Pal, S. Nandi and M. K. Kundu, Self-crossover : a new genetic operator and its application to feature selection, *Int. Jour. of Syst. Science* , Vol. 29, No. 2, pp 207-212, 1998.
78. N. R. Pal and K. Chintalapudi, A simple scheme for pruning a multilayer perceptron network, *Jour Knowledge Based Intell. Engg. Sys.*, Vol. 2, No. 3, pp 145-163, 1998.
79. K. Pal, N. R. Pal and J. M. Keller, Some neural net realizations of fuzzy reasoning, *Int. Journal of Intell. Systems*, Vol. 13, pp 859-886, 1998.
80. N. R. Pal and E. Vijay Kumar, Two efficient connectionist schemes for structure preserving dimensionality reduction, *IEEE Trans. Neural Networks* Vo. 9, No. 6, pp 1142-1153, 1998.
81. R. Mudi and N. R. Pal, A self-tuning fuzzy PD controller, *Journal of IETE*, Vol. 44, No. 4-5, pp 177-189, 1998.
82. K. Pal and N. R. Pal, Learning of rule importance for fuzzy controllers to deal with inconsistent rules and for rule selection, *Journal of Control and Cybernetics*, Vol. 27, No. 4, pp 521-543, 1998.
83. N. R. Pal, S. Chakraborty and A. Bagchi, RID3 : An ID3 like algorithm for real data, *Information Sciences - applications*, Vol. 96, pp 271-290, 1997.
84. N. R. Pal and T. George, Metric structures on possibility distributions, *Int. Jour. Gen. Systems*, Vol. 25, No. 4, pp 389-398, 1997.
85. N. R. Pal and J. Biswas, Cluster validation using graph theoretic concepts, *Pattern Recognition*, Vol. 30(6), pp 847-857, 1997.
86. R. Hemasinha, N. R. Pal and J. C. Bezdek, The determinant of a fuzzy matrix with respect to T- and and co T-norms, *Fuzzy Sets and Systems*, Vol. 87, pp 297-306, 1997.
87. N. R. Pal and K. Chintalapudi, A connectionist system for feature selection, *Neural, Parallel and Scientific Computation*, Vol. 5, No. 3, pp 359-381, 1997.
88. R. De, N. R. Pal and S. K. Pal, Feature analysis : Neural network and fuzzy set theoretic approaches, *Pattern Recognition* Vol. 30, No. 10, pp 1579-1590, 1997.
89. T. George and N. R. Pal, Quantification of Conflict in Dempster-Shafer framework : a new approach, *Int. Jour. Gen. Systems*, Vol. 24, No. 4, pp 407-423, 1996.
90. S. Biswas, N. R. Pal and S. K. Pal, Smoothing of Digital Images Using the Concept of Diffusion Process, *Pattern Recognition* , Vol. 29, No. 3, pp 497-510, 1996.

91. N. R. Pal, On minimum cross entropy thresholding, *Pattern Recognition*, Vol. 29, No. 4 , pp 575-580, 1996.
92. N. R. Pal, J. C. Bezdek and R. J. Hathaway, Sequential competitive learning and the fuzzy c-means clustering algorithms, *Neural Networks* , Vol. 9, No. 5, pp 787-796, 1996.
93. N. Karayiannis, J. C. Bezdek, N. R. Pal, R. J. Hathaway and P. I. Pai, Repairs to GLVQ : a new family of competitive learning Schemes, *IEEE Trans. Neural Networks*, Vol. 7, No. 5, pp 1062-1071, 1996.
94. J. Basak, N. R. Pal and P. S. Patel, Thinning in binary and gray images, *Journal of IETE* Vol. 42, No. 4-5, pp 305-313, 1996.
95. S. K. Pal and N. R. Pal, Soft Computing : Goals, Tools and Feasibility, *Journal of IETE* Vol. 42, No. 4-5, pp 195-204, 1996.
96. J. C. Bezdek and N. R. Pal, An index of topological preservation for feature extraction, *Pattern Recognition*, Vol. 28, No. 3, pp 381-391, 1995.
97. J. Basak, N. R. Pal and S. K. Pal, A connectionist system for learning and recognition of structures : application to handwritten characters, *Neural Networks*, Vol. 8, No. 4, pp 643-657, 1995.
98. A. Ghosh, N. R. Pal and S. K. Pal, Modeling of component failure in neural networks for robustness evaluation : an application to object extraction, *IEEE Trans. Neural Nets.*, Vol. 6, pp 648-656, 1995.
99. S. Bagui and N. R. Pal, A multistage generalization of the rank nearest neighbor classification rule, *Pattern Recognition Letter* , Vol. 16, pp 601-614, 1995.
100. J. C. Bezdek and N. R. Pal, A note on self-organizing semantic maps, *IEEE Trans. neural networks* Vol. 6, No. 5, pp 1029-1036, 1995.
101. N. R. Pal and J. C. Bezdek, On cluster validity for the fuzzy c-means model, *IEEE Trans. Fuzzy Sys.* , Vol. 3, No 3, pp 370-379, 1995.
102. J. C. Bezdek and N. R. Pal, Two relatives of learning vector Quantization, *Neural Networks*, Vol. 8, No. 5, pp 729-743, 1995.
103. J. C. Bezdek, R. J. Hathaway and N. R. Pal, Norm-induced shell-prototypes (NISPP) clustering, *Neural, Parallel and Scientific Computations* , Vol. 3, pp 431-450, 1995.
104. N. R. Pal and J. C. Bezdek, Measuring Fuzzy Uncertainty , *IEEE Trans. Fuzzy Syst.*, Vol. 2, No. 2, pp 107-118, 1994.
105. A. Ghosh, N.R. Pal and S.K. Pal, Neural Computing: An Introduction and Some Applications , *J. Inst. Electron. Telecom. Engg.*, 35, pp 105-125, 1994.
106. E. C. K. Tsao, J. C. Bezdek and N. R. Pal, Fuzzy Kohonen Clustering Networks, *Pattern Recognition*, Vol. 27, No. 5, pp 757-764, 1994.
107. D. Bhandari, N. R. Pal and S. K. Pal, Directed mutation in genetic algorithms, *Information Sciences*, Vol. 79, pp 251-270, 1994.
108. N. R. Pal, J. C. Bezdek and R. Hemasinha, Uncertainty measure for evidential reasoning - II : A new measure , *Inter. Jour. Approximate Reasoning*, Vol. 8, No. 1, pp 1-16, 1993.
109. A. Ghosh, N.R. Pal and S.K. Pal, Self-organization for Object Extraction using a Multilayer Neural Network and Fuzziness Measures , *IEEE Trans. Fuzzy Systems*, Vol. 1, No. 1, pp 54-68, 1993.
110. D. Bhandari and N. R. Pal, Some new information measures for fuzzy sets , *Information Sciences*, Vol. 67, No. 3, pp 209-228, 1993.
111. N. R. Pal and S. K. Pal, A review on image segmentation, *Pattern Recognition*, Vol. 26, No. 9, pp 1277-1294, 1993.
112. N. R. Pal and D. Bhandari, Image thresholding : some new techniques , *Signal Processing*, Vol. 33, No. 2, pp 139-158, 1993.

113. N. R. Pal, P. Pal and A. K. Basu, A new shape representation scheme and its application to shape discrimination using a neural network , *Pattern Recognition*, Vol. 26, No. 4, pp 543-551, 1993.
114. N. R. Pal, J. C. Bezdek and E. C. Tsao, Generalized clustering networks and Kohonen's Self-organizing scheme , *IEEE Trans. Neural Nets.* , Vol. 4, No. 4, pp 549-557, 1993.
115. R. Hemasinha, N. R. Pal and J. C. Bezdek, Iterates of fuzzy circulant matrices , *Fuzzy Sets and Systems*, Vol. 60, pp 199-206, 1993.
116. N.R. Pal and S.K. Pal, Higher order fuzzy entropy and hybrid entropy of a set , *Information Sciences*, Vol. 61, No. 3, pp 211-231, 1992.
117. N.R. Pal and S.K. Pal, Some properties of the Exponential entropy , *Information Sciences*, Vol. 66, No.1-2, pp 119-137, 1992.
118. A. Ghosh, N.R. Pal and S.K. Pal, Object background classification using hopfield type neural network , *Int. J. Patt. Recog. and Artificial Intell.*, Vol. 6, No. 5, pp 989-1008, 1992.
119. D. Bhandari, N. R. Pal and D. Dutta Majumder, Fuzzy divergence, probability measure of fuzzy events and image thresholding , *Pattern Recognition Letters*, Vol. 13, pp 857-867, 1992.
120. N. R. Pal and D. Bhandari, On object - background classification , *Int. Jour. of Systems Sciences*, Vol. 23, No. 11, pp 1903-1920, 1992.
121. N. R. Pal, J. C. Bezdek and R. Hemasinha, Uncertainty measure for evidential reasoning - I : A review , *Inter. Jour. Approximate Reasoning*, Vol. 7, No. 3,4, pp 165-183, 1992.
122. N.R. Pal and S.K. Pal, Image model, Poisson distribution and object extraction , *Int. J. Patt. Recog. and Artificial Intell.*, Vol. 5, No. 3, pp 459-483, 1991.
123. N.R. Pal and S.K. Pal, Entropy: a new definition and its applications , *IEEE Trans. Syst, Man and Cyberns.*, Vol. SMC-21, No. 5, pp 1260-1270, 1991.
124. A. Ghosh, N.R. Pal and S.K. Pal, Image segmentation using a neural network , *Biological Cybernetics*, Vol. 66, No. 2, pp 151-158, 1991.
125. N.R. Pal and S.K. Pal, Entropic thresholding , *Signal Processing*, Vol. 16, No. 2, pp 97-108, 1989.
126. N.R. Pal and S.K. Pal, Object-background segmentation using new definitions of entropy , *IEE Proceedings-E*, Vol. 136, No. 4, pp 284-295, 1989.
127. S.K. Pal and N.R. Pal, Segmentation using contrast and homogeneity measures , *Pattern Recognition Letters*, Vol. 5, No. 4, pp 293-304, 1987.
128. S.K. Pal and N.R. Pal, Segmentation based on measures of contrast, homogeneity, and region Size , *IEEE Trans. Syst. Man and Cyberns.*, Vol. 17, No. 5, pp 857-868, 1987.

Articles Published in Books

129. Yu-Shuen Tsai, I-Fang Chung, Chin-Teng Lin, and Nikhil R. Pal, Identification of Different Sets of Biomarkers for Diagnostic Classification of Cancers, *Neural Information Processing/ICONIP 2007*, Eds. M. Ishikawa, K. Doya, H. Miyamoto and T. Yamakawa, Vol. 4985/2008, pp 866-875, 2008.
130. D. Chakraborty and N. R. Pal, "Strict Generalization in Multilayered Perceptron Networks", *Foundations of Fuzzy Logic and Soft Computing, Proceedings of IFSA 2007, Lecture Notes in Artificial Intelligence (LNAI) 4529*, pp. 722-731, 2007
131. N. R. Pal and D. Chakraborty, Some new features for protein fold prediction, in *Artificial Neural Networks and Neural Information Processing - ICANN/ICONIP 2003*, Eds. Kaynak, O., Alpaydin, E., Oja, E., Xu, L. (Eds.) , *Lecture Notes in Computer Science. Vol.. 2714* , Springer, pp. 1176 - 1183, 2003.

132. C.-D. Huang, I-F. Chung, N. R. Pal, and C. T. Lin, Machine Learning for Multi-class Protein Fold Classification Based on Neural Networks with Feature Gating, *Artificial Neural Networks and Neural Information Processing - ICANN/ICONIP 2003*, Eds. Kaynak, O., Alpaydin, E., Oja, E., Xu, L. (Eds.) , Lecture Notes in Computer Science. Vol.. 2714 , Springer, pp 1168 - 1175, 2003
133. Karmeshu and N. R. Pal, Uncertainty, Entropy and Maximum Entropy Principle – An Overview, In *Entropy Measures, Maximum Entropy Principle and Emerging Applications*, Ed. Karmeshu, Springer-Verlag, 1-53, 2003
134. D. P. Mandal and N. R. Pal, On the utility of different entropy measures in image thresholding, In *Entropy Measures, Maximum Entropy Principle and Emerging Applications*, Ed. Karmeshu, Springer-Verlag, pp 177-198, 2003
135. J. C. Bezdek, N. R. Pal, T. Runkler, and K. Pal, Should tendency assessment precede rule extraction by clustering? (No!), in *Advances in Computational Intelligence and Learning: Methods and Applications*, eds. H. Zimmermann, G. Tsientis, M. V. Someren and G. Dounias, Kluwer, Norwell, MA, 17-41, 2002.
136. N. R. Pal and A. Sarkar, Extraction of fuzzy rules from numerical data for classifiers, *Pattern Recognition in Soft Computing Paradigm*, World Scientific, Ed. N. R. Pal, pp 249-274, 2001.
137. D. P. Mandal and N. R. Pal, Non-Shannon entropies for image thresholding, *Current Trends in Information theory, statistics and O. R.*, Ed. Om Prakash, Guru Nanak Dev University, India, pp 32-46, 2001
138. K. Pal and N. R. Pal, Fuzzy rule extraction for classifier design, *Current Trends in Information theory, statistics and O. R.*, Ed. Om Prakash, Guru Nanak Dev University, India, pp 47-59, 2001
139. N. R. Pal and J. C. Bezdek, Quantifying different facets of fuzzy uncertainty, Handbook of Fuzzy Sets , *Kluwer Academic Publishers*, Eds. D. Dubois & H. Prade, pp 459-480, 2000.
140. N. R. Pal and D. Chakraborty, Simultaneous feature analysis and system identification in a neuro-fuzzy framework, *Neuro-fuzzy Pattern Recognition*, Eds. H. Bunke and A. Kandel, World Scientific, pp 3-22, 2000.
141. N. R. Pal, Connectionist approaches for feature analysis, *Neuro-Fuzzy Tools and Techniques*, Physica-Verlag, Heidelberg, pp 147-167, 1999 Eds. N. Kasabov and R. Kozma
142. M. K. Kundu and N. R. Pal, Self-crossover and its application to the travelling salesman problem, *Lecture Notes in Artificial Intelligence 1611* Eds. I. Imam, Y. Kodratoff, A. El-Dessouki, and M. Ali, pp 326-332, 1999.
143. N. R. Pal and E. Vijay Kumar, Neural networks for dimensionality reduction, *Progress in Connectionist-Based Information Systems, Proc. Fourth Int. Conf. Neural Info. Processing, ICONIP'97*, Ed. Kasabov et al. , Springer, New Zealand, Vol. 1, pp 221-224, 1997
144. N. R. Pal Neural networks for feature selection (invited) *Progress in Connectionist-Based Information Systems, Proc. Fourth Int. Conf. Neural Info. Processing, ICONIP'97*, Ed. Kasabov et al., Springer, New Zealand, pp 1121-1124, Vol. 2, 1997
145. N. R. Pal and S. Chakraborty, A hierarchical algorithm for classification and its tuning by genetic algorithm, *Proc. Fourth Int. Conf. Neural Info. Processing, ICONIP'97*, Ed. Kasabov et al., Springer, New Zealand, Vol. 1, pp 404-407, 1997
146. N. R. Pal and C. Bose, Adaptive fuzzy controllers with rule dependent inferencing, *Methodologies for the conception, design, and applications of intelligent systems - 4th Int. Conf. Soft Computing, IIZUKA '96*, Eds. T. Yamakawa and G. Matsumoto, World Scientific, pp 350-353, 1996
147. K. Pal and N. R. Pal, A flexible fuzzy controller with relative importance of rules, *Methodologies for the conception, design, and applications of intelligent systems - 4th Int. Conf. Soft Computing, IIZUKA '96*, Eds. T. Yamakawa and G. Matsumoto, World Scientific, pp 398-401, 1996
148. N. R. Pal and S. Mukhopadhyay, A psychovisual fuzzy reasoning edge detector, *Methodologies for the conception, design, and applications of intelligent systems - 4th Int. Conf. Soft Computing, IIZUKA '96*, Eds. T. Yamakawa and G. Matsumoto, World Scientific, pp 201-204, 1996

149. J. C. Bezdek, N. R. Pal, Cluster validity with generalized Dunn's indices, *Proc. 1995 2nd NZ Int. Two-Stream Conf. on ANNES, 1995*, Eds. N. Kasabov and G. Coghill, IEEE Press, Piscataway, NJ, pp 190-193, 1995
150. N. R. Pal and J. C. Bezdek, Measures of fuzziness : a review and several new classes, *Fuzzy sets, Neural nets and Soft computing*, Eds. R. R. Yager and L. A. Zadeh, ITP - Van Nostrand Reinhold, NY, pp 194-212, 1994.
151. A. Ghosh, N.R. Pal and S.K. Pal, Neural Network, Gibbs Distribution and Object Extraction , *Intelligent Robotics - Int. Symp. on Intell. Robotics (ISIR)*, Eds. M. Vidyasagar and M. Trivedi, Tata McGraw Hill, India, pp 95-106, 1991.
152. A. Ghosh, N.R. Pal and S.K. Pal, Object Extraction Using a Self-Organizing Neural Network , *Intelligent Robotics - Int. Symp. on Intell. Robotics (ISIR)*, Eds. M. Vidyasagar and M. Trivedi, Tata McGraw Hill, India, pp 686-697, 1991.
153. S.K. Pal and N.R. Pal, Higher Order Entropy, Hybrid Entropy and Their Applications , in *Spectrum Analysis in One or Two Dimensions* (eds. S. Prasad and R.L. Kashyap), Oxford & IBH Pub. Co., New Delhi, pp 285-300, 1990.

Articles published in Seminars, Symposia, Conference Volumes

154. K. Sarkar and N. R. Pal, Is it rational to partition a data set using Kernel-clustering?, *2011 IEEE International Conference on Fuzzy Systems*, Fuzz-IEEE 2011, Taipei, Taiwan, June 27-30,2011.
155. Yu-Kai Wang, Nikhil R. Pal, Chin-Teng Lin and Shi-An Chen, Analyzing Effect of Distraction Caused by Dual-Tasks on Sharing of Brain Resources Using SOM, 2010 IEEE World Congress on Computational Intelligence, WCCI 2010, Proc. IJCNN 2010, IEEE, Barcelona, pp 927-932.
156. A. Anand, Nikhil R. Pal and Ponnuthurai Suganthan, Integration of Functional Information of Genes in Fuzzy Clustering of Short Time Series Gene Expression Data, 2010 IEEE World Congress on Computational Intelligence, WCCI 2010, Proc. IEEE CEC 2010,Barcelona, pp 3002-3009.
157. R.Kumar, N. R. Pal, J.D. Sharma, and B. Chanda, A Novel Approach for Detection of Alteration in Ball Pen Writings, *PreMi 2009*, LNCS 5909, pp. 400405, 2009.
158. Hwa-Shan Huang, Nikhil R. Pal, Li-Wei Ko and Chin-Teng Lin, Automatic Identification of Useful Independent Components with a View to Removing Artifacts from EEG Signal, *2009 Int. Joint Conf. Neural Networks*, IJCNN 2009, June 14-19, 2009, Atlanta, USA
159. Chin-Teng Lin, Nikhil R. Pal, Chien-Yao Chuang, Tzyy-Ping Jung, Li-Wei Ko, Sheng-Fu Liang, "An EEG-based Subject- and Session-independent Drowsiness Detection" *Proceedings of International Joint Conference on Neural Networks(IJCNN)*, *World Congress on Computational Intelligence*, pp. 3448-3454, June 1-6, 2008.
160. N. R. Pal, A fuzzy rule based approach to identify biomarkers for diagnostic classification of cancers, *IEEE Int. Conf. Fuzzy Systems*, Fuzz-IEEE 2007, pp 1-6, DOI 10.1109/FUZZY.2007.4295533
161. D. P. Muni, N. R. Pal and J. Das, Texture Generation For Fashion Design Using Genetic Programming, *Proc. the 9th International Conference on Control, Automation, Robotics and Vision*, ICARCV-2006, IEEE, Singapore, December 5 - 8, pp 1940-1944, 2006.
162. A. Laha, B. Chanda, and N. R. Pal, Accelerated codebook searching in a SOM-based Vector Quantizer, *2006 International Joint Conference on Neural Networks*, WCCI 2006, Vancouver, Canada, July 16-21, pp 5945-5950, 2006.
163. B. Saha, A. Mazumdar and N. R. Pal, Bidirectional Fuzzy-Regression Model for Road-lines Detection, *IEEE International Conference on Engineering of Intelligent Systems*, ICEIS'2006, Islamabad, Pakistan,22-23 April, 2006.
164. B. Bhowmick, N. R. Pal, S. Pal, S. K. Patel & J. Das, Detection of Microcalcification with Neural Networks, *IEEE International Conference on Engineering of Intelligent Systems*, ICEIS'2006, Islamabad, Pakistan,22-23 April, 2006.

165. N. R. Pal, K. Pal, J. Keller and J. Bezdek, A New Hybrid c-Means Clustering Model, *Proc. 2004 IEEE International Conference on Fuzzy Systems*, FuzzIEEE2004, Budapest, Hungary, pp. 179-184, 2004.
166. D. Chakraborty and N. R. Pal, Expanding the training set for better generalization, *Proc. International Conference on Communications, Devices and Intelligent Systems, CODIS 2004*, 8 - 10 January, 2004, Calcutta, Eds. A.K. Mandal, A.K. Bandyopadhyay, B. Gupta, S.K. Choudhary and S.K. Sarkar , Jadavpur University, Calcutta, pp 454 - 457.
167. S. K. Patel, N. R. Pal and S. Pal, Fuzzy edge detection with human psychovisual facts, *Proc. International Conference on Communications, Devices and Intelligent Systems, CODIS 2004*, 8 - 10 January, 2004, Calcutta, Eds. A.K. Mandal, A.K. Bandyopadhyay, B. Gupta, S.K. Choudhary and S.K. Sarkar , Jadavpur University, Calcutta, pp 496 - 499
168. D. P. Muni, N. R. Pal and J. Das, Multicategory classifier design using genetic programming, *Proc. International Conference on Communications, Devices and Intelligent Systems, CODIS 2004*, 8 - 10 January, 2004, Calcutta, Eds. A.K. Mandal, A.K. Bandyopadhyay, B. Gupta, S.K. Choudhary and S.K. Sarkar , Jadavpur University, Calcutta, pp 597 - 599
169. S. Chakraborty and N. R. Pal, Selection of Structure Preserving Features with Neural Networks, *Proc. 2003 IEEE Int. Conf. Fuzzy Systems, Fuzz-IEEE'03*, pp 822-827, 2003
170. D. Chakraborty and N. R. Pal, Two Connectionist Schemes for Selecting Groups of Features (Sensors) *Proc. 2003 IEEE Int. Conf. Fuzzy Systems, Fuzz-IEEE'03*, pp 161-166, 2003
171. D. Chakraborty and N. R. Pal, Making a multilayer perceptron say "Don't Know" when it should, *Proc. International Conference on Neural Information Processing, ICONIP 2002*, Vol. 1, pp 45-49, Dec. 18-22, 2002, Singapore.
172. A. Laha, N. R. Pal and J. Das, Satellite image analysis with fuzzy rules and theory of evidence, *Proc. Conference on Fuzzy set theory and its mathematical aspects and applications*, Allied Publishers Pvt. Ltd., pp 33-39, 2002, Benaras, India
173. J. C. Bezdek and N. R. Pal, Blind detection of targets from LADAR data, *Joint 9th IFSA World Congress and 20th NAFIPS International Conference: Fuzziness and Soft Computing in the New Millenium*, Vancouver, Canada, July 25-28, 2001, IEEE Press, Piscataway, NJ, 1127-1133.
174. N. R. Pal and S. Chakraborty, IRID3 : An improved version or RID3 for classification, *Asian Fuzzy Systems Symposium, 2000*, Vol. 2, 987-992
175. S. Chakraborty and N. R. Pal , Generation of fuzzy rules from a decision tree, *Asian Fuzzy Systems Symposium, 2000*, Vol. 2, 993-997.
176. A. Laha and N. R. Pal, and J. Das, Designing prototype-based classifiers and their application to multispectral satellite images, *Proc. 6th Int. conference on Soft Computing, IIZUKA2000*, Japan, 2000, CDROM ISBN 4-938717-04-2.
177. Pal, K., Bezdek, J. C., Pal, N. R. and Runkler, T., Some notes on fuzzy rule extraction by clustering, *Proc. 5th Iberoamerican Symp. on Patt. Recog.*, eds. F. Muge, R. C. Pinto and M. Piedade, ISBN 972-97711-1-1, 19-27.
178. Pal, K., Pal, N. R., Runkler, T. and Bezdek, J. C., Fuzzy rule extraction by clustering : the role of tendency assessment, *Proc. COIL 2000, Evolutionary computing, fuzzy logic, machine learning, neural networks*, 22-23 June 2000, Greece, pp 1-13
179. T. Pal, N. R. Pal and S. Dev Roy, A self organized rule generation scheme for fuzzy logic controllers, *Proc. 9th Int. Conf. Fuzzy Systems, FUZZIEEE-2000*, Vol 1, 13-18.
180. A. Laha and N. R. Pal, Design of a Nearest-Prototype Classifier with Dynamically Generated Prototypes using Self-Organizing Feature Maps, *Proc. 1999 Int. Conf. on Neural Information Processing, ICONIP'99*, pp 746-751, Vol. 2, November 1999, Australia.
181. A. Laha and N. R. Pal, On different variants of self-organizing feature map and their properties, *Proc. 1999 IEEE Hong Kong Symp. on Robotics & Control*, Vol. I, pp 344-349, 1999.

182. N. R. Pal, G. Mandal and E. Vijay Kumar, Structure Preserving Dimensionality Reduction : A Fuzzy Logic Approach, *Asian Fuzzy Systems Symposium, 1998*, Korea, pp 426-431.
183. S. Raha, N. R. Pal and K. S. Ray, Some new similarity based approaches in approximate reasoning and their applications to pattern recognition, *Asian Fuzzy Systems Symposium, 1998*, Korea, pp 719-724.
184. K. Pal and N. R. Pal, Modeling Dehydrating Behavior of Hydrogen Storage Materials with Neural Networks, *Fifth Int. Conf. Neural Information Processing, ICONIP, 98*, Japan, 703-706, 1998.
185. N. R. Pal, K. Banerjee and Y. Hayashi, SUM-PI NETWORK : a new multilayered feed-forward network, *Fifth Int. Conf. Neural Information Processing, ICONIP, 98*, Japan, 687-690, 1998.
186. P. N. Suganthan and N. R. Pal, Pattern classification using multiple SOMs, *Fifth Int. Conf. Neural Information Processing, ICONIP, 98*, Japan, 1065-1068, 1998.
187. K. Pal, R. Mudi and N. R. Pal, Rule extraction and reduction through exploratory data analysis for designing a self-tuning fuzzy controller, *Proc. of the Japan-Vietnam Bilateral Symposium on Fuzzy Systems and Applications, VJFUZZY'98*, Sept. 30 - Oct. 2, 1998, pp 607-613, Ha-Long Bay, Vietnam
188. N. R. Pal and Y. Hayashi, A proposal for direct fuzzy rule generation from numerical data *Proc. Fifth Int. Conf. Fuzzy Logic, Neural Nets and Soft Computing, IIZUKA'98*, Japan, pp 971-974, 1998.
189. K. Pal and N. R. Pal, Using fuzzy rules with importance factors for time series prediction and rule selection, *Proc. Fifth Int. Conf. Fuzzy Logic, Neural Nets and Soft Computing, IIZUKA'98*, Japan, 1998, 418-421.
190. K. Chintalapudi and N. R. Pal, A novel scheme to determine the architecture of a multi-layer perceptron, *IEEE Int. Conf. on Syst. Man and Cybern., USA*, 1998, pp 2297-2303.
191. N. R. Pal, K. Pal, J. C. Bezdek and T. Runkler, Some issues in system identification using clustering, *Int. Joint Conf. on Neural Networks, ICNN 1997*, IEEE Press, Piscataway, NJ, 2524-2529, 1997.
192. N. R. Pal, K. Pal and J. C. Bezdek, A mixed c-means clustering model, *1997 IEEE Int. Conf. on Fuzzy Systems*, Spain, 11-21, 1997.
193. R. Mudi and N. R. Pal, A robust self-tuning scheme for PI-type controllers, *EUFIT - 1997*, Germany.
194. N. R. Pal and T. George, A new conflict measure for Dempster-Shafer framework, *Sixth Int. World Congress of the Int. Fuzzy syst. Asso., IFSA-1995*, Sao-Paulo, Brazil, 353-356.
195. J. C. Bezdek, R. Hathaway and N. R. Pal, Shell prototype clustering models, *Proc. ICNN, 4*, IEEE Press, Piscataway, NJ, 1617-1621, 1995
196. J. Basak, N. R. Pal and P. S. Patel, A connectionist model for graytone thinning, *Proc. ICNN, 4*, IEEE Press, Piscataway, NJ, 1460-1465, 1995
197. J. C. Bezdek, N. R. Pal, R. J. Hathaway and N. B. Karayiannis, Some new competitive learning schemes, *Proc. SPIE*, 1995.
198. B. Umashankar and N. R. Pal, FFCM : An effective approach for large data sets, *Proc. Third Int. Conf. Fuzzy Logic, Neural Nets and Soft Computing, IIZUKA*, Japan, pp 331-332, 1994.
199. S. Biswas, N. R. Pal and S. K. Pal, A Quantitative Index for Termination of Iterative Image Smoothing Algorithms. *Proc. Third International Conference on Automation, Robotics and Computer Vision*, 1107-1111, Nov 9-11, 1994.
200. N. R. Pal and J. C. Bezdek, Several new classes of measures of fuzziness , *Proc. IEEE Int. Conf. on Fuzzy Syst.*, 928-933, Mar. 1993.
201. J. C. Bezdek and N. R. Pal, Prototype generating clustering algorithms, *Proc. Fifth IFSA World Congress*, Soel, Korea, Vol. 1, pp XXXVI-XLIII, 1993.

202. J. C. Bezdek and N. R. Pal, An index of topological preservation and its application to self-organizing feature maps, *Int. Joint Conf. Neural Nets.*, 1993, Nagyo, Japan, pp 2435-2440.
203. J. Basak, N. R. Pal and S. K. Pal, A connectionist system for handwritten character recognition, *Proc. Symposium on Intelligent Systems*, Bangalore, India, 1993, pp 21-27.
204. N. R. Pal and J. C. Bezdek, Extensions of self-organizing feature maps for improved visual displays, *Int. Joint Conf. Neural Nets.*, 1993, Nagyo, Japan, pp 2441-2447.
205. D. Bhandari, N. R. Pal and S. K. Pal, Directed mutation : a new concept to expedite search in genetic algorithms, *Proc. Symposium on Intelligent Systems*, Bangalore, India, 1993, pp 1-7.
206. N. R. Pal and J. C. Bezdek, Assessment of clustering tendency and cluster validity : some fuzzy methods, *Proc. First Asian Fuzzy Syst. Symp.*, Singapore, Nov 23-26, 1993, pp 444-449.
207. J. Basak, N. R. Pal and S. K. Pal, A connectionist implementation of Hough transform, *Int. Conf. on Advances in Pattern Recogn. and Digital Techniques*, Dec 28-31, 1993, India.
208. J. C. Bezdek and N. R. Pal, Fuzzification of self-organizing feature map : will it work?, *Proc. Application of Fuzzy Logic Technology*, SPIE Vol. 2061, 142-162, Boston, USA, 1993.
209. J. Basak, N. R. Pal, and S. K. Pal, A novel connectionist approach for automatic peak selection in Hough space, *Proc. Indo-US workshop*, Pune, India, 1993.
210. J. C. Bezdek, E. C. Tsao and N. R. Pal, Fuzzy Kohonen clustering networks , *Proc. IEEE Int. Conf. of Fuzzy Syst.*, March 1992, San Diego, USA, pp 1035-1043.
211. D. Bhandari, N. R. Pal and D. Dutta Majumder, Measures of discrimination and ambiguity for fuzzy sets , *Proc. IEEE Int. Conf. of Fuzzy Systems*, March 1992, San Diego, USA, pp 145-152.
212. E. C. Tsao, W. C. Lin, J. C. Bezdek and N. R. Pal, A neural network system for medical image understanding , *Proc. Fifth Florida AI Research Symposium*, Florida, April 7-10, 1992, pp 24-28.
213. N. R. Pal, J. C. Bezdek and E. C. Tsao, Improving convergence and performance of Kohonen's Self-organizing Scheme , *SPIE Proc., Science of Artificial Neural Networks*, Orlando, Vol. 1710, pp 500-509, 1992.
214. N. R. Pal, J. C. Bezdek, Average total uncertainty : A new measure and its properties , *Proc. 2nd Int. Conf. on Fuzzy Logic and Neural Networks*, July 1992, Iizuka, Japan, pp 583-586.
215. D. Bhandari, N. R. Pal and D. Dutta Majumder. Fuzzy divergence : A new measure for image segmentation , *Proc. Int. Conf. on Fuzzy Logic and Neural Networks*, July 1992, Iizuka, Japan, pp 645-648.
216. E. C. Tsao, J. C. Bezdek and N. R. Pal, Image segmentation using LVQ clustering networks , *Proc. North American Fuzzy Info. Proc. Soc. (NAFIPS-92)*, Mexico, pp 98-107.
217. J. C. Bezdek, N. R. Pal and E. C. Tsao, Two generalizations of Kohonen clustering networks , *Proc. Third Int. Workshop on Neural Networks and Fuzzy Logic-92*, Jun. 1-3, 1992, NASA Huston, Pub # 10111, VII, pp 199-226.
218. N. R. Pal and S. K. Pal, Some Information Measures on Fuzzy Set and Their Application to Image Processing , *Proc. NACONECS-89*, Roorkee, India, Tata McGraw-Hill, New Delhi, pp 94-96, 1989.
219. S. K. Pal and N. R. Pal, Object-Background Classification Using A New Definition of Entropy , *Proc. IEEE. Int. Conf. Syst., Man and Cyberns.*, Shenyang, China, pp 773-776, 1988.
220. S. K. Pal and N. R. Pal, Object Extraction Using Higher Order Entropy , *Proc. 9th Int. Conf. Patt. Recog.*, Rome, Italy, pp pp 348-350, 1988.
221. N. R. Pal and S. K. Pal, New Entropic Thresholding , *Proc. Seminar on Parallel Process. Syst. and Their Appl.*, Calcutta, pp 120-123, 1988.
222. S. K. Pal and N. R. Pal, Two Stage Segmentation Algorithm Incorporating Psychovisual Phenomena in Contrast Homogeneity Measure , *Proc. Platinum Jubilee Conf. Syst. and Sig. Process.*, Indian Institute of Science, Bangalore, India, pp 366-369, 1986.