

REFERENCES

- [1] S.Abe, and M.-S.Lan: "A method for fuzzy rules extraction directly from numerical data and its application to pattern classification," *IEEE Trans. on Fuzzy Systems*, Vol.3, No.1, pp.18-28 (1995).
- [2] S.Abe, M.-S.Lan, and R.Thawonmas: "Tuning of a fuzzy classifier derived from data," *International Journal of Approximate Reasoning*, Vol.14, No.1, pp.1-24 (1996).
- [3] K.R.Baker, and G.D.Scudder: "Sequencing with earliness and tardiness penalties: A review," *Operations Research*, Vol.38, No.1, pp.22-36 (1990).
- [4] L.B.Booker, D.E.Goldberg, and J.H.Holland: "Classifier systems and genetic algorithms," *Artificial Intelligence*, Vol.40, No.1-3, pp. 235-282 (1989).
- [5] B.Carse, T.C.Fogarty, and A.Munro: "Evolving fuzzy rule based controllers using genetic algorithms," *Fuzzy Sets and Systems*, Vol.80, pp.273-293 (1996).
- [6] A. L. Corcoran, and S. Sen: "Using real-valued genetic algorithms to evolve rule sets for classification," *Proc. 1st IEEE ICEC* (Orlando, USA, June 27-29, 1994), pp.120-124.
- [7] R.L.Daniels, and R.J.Chambers: "Multiobjective flow-shop scheduling," *Naval Research Logistics*, Vol.37, pp.981-995 (1990).
- [8] D.G.Dannenbring: "An evaluation of flowshop sequencing heuristics," *Management Science*, Vol.23, pp.1174-1182 (1977).
- [9] L.Davis: *Handbook of Genetic Algorithms* (Van Nostrand Reinhold, New York, USA, 1991).
- [10] R.A.Dudek, S.S.Panwalkar, and M.L.Smith: "The lessons of flowshop scheduling search," *Operations Research*, Vol.47, No.1, pp.65-74 (1992).
- [11] H.Esbensen: "Defining solution set quality," *Memorandum* (No.UCB/ERL M96/1, Electric Research Laboratory, College of Engineering, University of California, Berkeley, USA, January, 1996).
- [12] D.S.Feldman: "Fuzzy network synthesis with genetic algorithms," *Proc. 5th ICGA* (University of Illinois at Urbana-Champaign, USA, July 17-21, 1993), pp.312-317.
- [13] R.A.Fisher: "The use of multiple measurements in taxonomic problems," *Annals of Eugenics*, Vol.7, pp.179-188 (1936).
- [14] C.M.Fonseca, and P.J.Fleming: "Genetic algorithms for multiobjective optimization: Formulation, discussion and generalization," *Proc. 5th ICGA* (University of Illinois at Urbana-Champaign, USA, July 17-21, 1993), pp.416-423.
- [15] C.M.Fonseca, and P.J.Fleming: "An overview of evolutionary algorithms in multiobjective optimization," *Evolutionary Computation*, Vol.3, No.1, pp.1-16 (1995).
- [16] M. Forina *et al.*: "Wine recognition database," available via anonymous ftp from [ics.uci.edu](ftp://ics.uci.edu/pub/machine-learning-databases/wine) in directory */pub/machine-learning-databases/wine* (1992).
- [17] B.R.Fox, and M.B.McMahon: "Genetic operations for sequencing problems," in: G.J.E.Rawlins (Ed.), *Foundations of Genetic Algorithms* (Morgan Kaufmann Publishers, San Mateo, USA, 1991), pp.284-300.
- [18] T.Fukuda, H.Ishigami, T.Shibata, and F.Arai: "Structure optimization of fuzzy neural network by genetic algorithm," *Proc. 5th IFSA Congress* (Seoul, Korea, July 4-9, 1993), pp.964-967.
- [19] T.Furuhashi, K.Nakaoka, and Y.Uchikawa: "Suppression of excessive fuzziness using multiple fuzzy classifier systems," *Proc. FUZZ-IEEE'94* (Orlando, USA, June 26-29, 1994), pp. 411-414.
- [20] R.Gangadharan, and C.Rajendran: "A simulated annealing heuristic for scheduling in a flowshop with

- bicriteria,” *Proc. 16th International Conference on Computers & Industrial Eng.* (March 7-9, 1994), pp.345-348.
- [21] M.Gen, K.Ida, E.Kono, and Y.Li: “Solving bicriteria solid transportation problem by genetic algorithm,” *Proc. 16th International Conference on Computers & Industrial Eng.* (March 7-9, 1994), pp.572-575.
 - [22] C.A.Glass, C.N.Potts, and P.Shade: “Genetic algorithms and neighborhood search for scheduling unrelated parallel machines,” Preprint series (No.OR47, University of Southampton, UK, 1992).
 - [23] D.E.Goldberg: *Genetic Algorithms in Search, Optimization, and Machine Learning* (Addison-Wesley, Reading, USA, 1989).
 - [24] S.K.Halgamuge, W.Poechmueller, and M.Glesner: “An alternative approach for generation of membership functions and fuzzy rules based on radial and cubic basis function networks,” *International Journal of Approximate Reasoning*, Vol.12, No.3/4, pp.279-298 (1995).
 - [25] F.Herrera, M.Lozano, and J.L.Verdegay: “Tuning fuzzy logic controllers by genetic algorithms,” *International J. of Approximate Reasoning*, Vol.12, pp.299-315 (1995).
 - [26] J.C.Ho, and Y.-L.Chang: “A new heuristic for the n-job, m-machine flowshop problem,” *European Journal Operational Research*, Vol.52, pp.194-202 (1991).
 - [27] J.Holland: *Adaptation in Natural and Artificial Systems* (University of Michigan Press, Ann Arbor, USA, 1975).
 - [28] A.Homaifar, and E.McCormick: “Simultaneous design of membership functions and rule sets for fuzzy controllers using genetic algorithms,” *IEEE Trans. on Fuzzy Systems*, Vol.3, pp.129-139 (1995).
 - [29] S.Horikawa, T.Furuhashi and Y.Uchikawa: “On fuzzy modeling using fuzzy neural networks with the back-propagation algorithm,” *IEEE Trans. on Neural Networks*, Vol.3, No.5, pp.801-806 (1992).
 - [30] J.Horn, N.Nafpliotis, and D.E.Goldberg: “A niched Pareto genetic algorithm for multiobjective optimization,” *Proc. 1st IEEE ICEC* (Orlando, USA, June 27-29, 1994), pp.82-87.
 - [31] R.C.Horte: “Very simple classification rules perform well on most commonly used datasets,” *Machine Learning*, Vol.11, pp.63-91 (1993).
 - [32] H.Ichihashi, and T.Watanabe: “Learning control by fuzzy models using a simplified fuzzy reasoning,” *Journal of Japan Society for Fuzzy Theory and Systems*, Vol.2, No.3, pp.429-437 (1990, in Japanese).
 - [33] E.Ignall, and L.E.Schrage: “Application of branch- and bound technique to some flow shop problems,” *Operations Research*, Vol.13, No.3, pp.400-412 (1965).
 - [34] H.Ishibuchi, S.Misaki, and H.Tanaka: “Modified simulated annealing algorithms for the flow shop sequencing problem,” *European Journal of Operational Research*, Vol.81, No.2, pp.388-398 (1995).
 - [35] H.Ishibuchi, and T.Murata: “Selection of linguistic classification rules using two-objective genetic algorithms,” *Journal of Japan Society for Fuzzy Theory and Systems*, Vol.7, No.5, pp.1041-1049 (1995, in Japanese).
 - [36] H.Ishibuchi, and T.Murata: “A learning method of fuzzy classification rules by a genetic algorithm,” *Trans. of the Institute of Electronics, Information and Communication Engineers Series A*, Vol.J79-A, No.7, pp.1289-1297 (1996, in Japanese).
 - [37] H.Ishibuchi, and T.Murata: “A genetic-algorithm-based fuzzy partition method for pattern classification problems,” in: F.Herrera and J.L.Verdegay (Eds.), *Genetic Algorithms and Soft Computing* (Studies in Fuzziness Vol.8, Physica-Verlag, Heidelberg, Germany, 1996), pp.555-578.
 - [38] H.Ishibuchi, and T.Murata: “Multi-objective genetic local search algorithm,” *Proc. 3rd IEEE ICEC* (Nagoya, Japan, May 20-22, 1996), pp.119-124.
 - [39] H.Ishibuchi, T.Murata, and H.Tanaka: “Construction of fuzzy classification systems using genetic algorithms,” *Journal of Japan Society for Fuzzy Theory and Systems*, Vol.7, No.5, pp.1022-1040 (1995, in Japanese).
 - [40] H.Ishibuchi, T.Murata, and H.Tanaka: “Construction of fuzzy classification systems with linguistic if-then rules using genetic algorithms,” in: S.K.Pal and P.P.Wang (Eds.), *Genetic Algorithms for Pattern Recognition* (CRC Press, Boca Raton, Florida, USA, 1996), pp.227-251.

- [41] H.Ishibuchi, T.Murata, and I.B.Türkşen : “Single-objective and two-objective genetic algorithms for selecting linguistic rules for pattern classification problems,” *Fuzzy Sets and Systems* (to appear).
- [42] H.Ishibuchi, T.Nakashima, and T.Murata: “A fuzzy classifier system that generates fuzzy if-then rules for pattern classification problems,” *Proc. 2nd IEEE ICEC* (Perth, Australia, November 26-December 1, 1995), pp.759-764.
- [43] H.Ishibuchi, T.Nakashima, and T.Murata: “Genetic-algorithm-based approaches to the design of fuzzy systems for multi-dimensional pattern classification problems,” *Proc. 3rd IEEE ICEC* (Nagoya, Japan, May 20-22, 1996), pp.229-234.
- [44] H.Ishibuchi, and M.Nii: “Generating fuzzy if-then rules from trained neural networks: Linguistic analysis of neural networks,” *Proc. IEEE ICNN'96* (Washington DC, USA, June 3-6, 1996), pp.1133-1138.
- [45] H.Ishibuchi, K.Nozaki, and H.Tanaka: “Distributed representation of fuzzy rules and its application to pattern classification,” *Fuzzy Sets and Systems*, Vol.52, pp.21-32 (1992).
- [46] H.Ishibuchi, K.Nozaki, and H.Tanaka: “Efficient fuzzy partition of pattern space for classification problems,” *Fuzzy Sets and Systems*, Vol.59, pp.259-304 (1993).
- [47] H.Ishibuchi, K.Nozaki, N.Yamamoto, and H.Tanaka: “Construction of fuzzy classification system with rectangular fuzzy rules using genetic algorithms,” *Fuzzy Sets and Systems*, Vol.65, pp.237-253 (1994).
- [48] H.Ishibuchi, K.Nozaki, N.Yamamoto, and H.Tanaka: “Selecting fuzzy if-then rules for classification problems using genetic algorithms,” *IEEE Trans. on Fuzzy Systems*, Vol.3, No.3, pp.260-270 (1995).
- [49] H.Ishibuchi, N.Yamamoto, T.Murata, and H.Tanaka: “Genetic Algorithms and Neighborhood Search Algorithms for Fuzzy Flowshop Scheduling Problems,” *Fuzzy Sets and Systems*, Vol.67, pp.81-100 (1994).
- [50] H.Ishigami, T.Fukuda, T.Shibata, and F.Arai: “Structure optimization of fuzzy neural network by genetic algorithm,” *Fuzzy Sets and Systems*, Vol.71, pp.257-264 (1995).
- [51] J.-S.R.Jang: “Self-learning fuzzy controllers based on temporal back propagation,” *IEEE Trans. on Neural Networks*, Vol.3, No.5, pp.714-723 (1992).
- [52] J.-S.R.Jang: “Fuzzy controller design without domain experts,” *Proc. FUZZ-IEEE'92* (San Diego, USA, March 8-12, 1992), pp. 289-296.
- [53] C.Z.Janikow: “A genetic algorithm for optimizing fuzzy decision trees,” *Proc. 6th ICGA* (University of Pittsburgh, USA, July 15-19, 1995), pp.421-428.
- [54] C.Z.Janikow: “A genetic algorithm method for optimizing the fuzzy components of a fuzzy decision tree,” in: S.K.Pal and P.P.Wang (Eds.), *Genetic Algorithms for Pattern Recognition* (CRC Press, Boca Raton, Florida, USA, 1996), pp. 253-281.
- [55] P.Jog, J.Y.Suh, and D.V.Gucht: “The effects of population size, heuristic crossover and local improvement on a genetic algorithm for the traveling salesman problem,” *Proc. 3rd ICGA* (George Mason University, USA, June 4-7, 1989), pp.110-115.
- [56] S.M.Johnson: “Optimal two- and three-stage production schedules with setup times included,” *Navel Research Logistics Quarterly*, Vol.1, No.1, pp.61-68 (1954).
- [57] C.L.Karr: “Design of an adaptive fuzzy logic controller using a genetic algorithm,” *Proc. 4th ICGA* (San Diego, USA, July 13-16, 1991), pp.450-457.
- [58] C.L.Karr, and E.J.Gentry: “Fuzzy control of pH using genetic algorithms,” *IEEE Trans. on Fuzzy Systems*, Vol.1, No.1, pp.46-53 (1993).
- [59] J.Kinzel, F.Klawonn, and R.Kruse: “Modifications of genetic algorithms for designing and optimizing fuzzy controllers,” *Proc. 1st IEEE ICEC* (Orlando, USA, June 27-29, 1994), pp.28-33.
- [60] H.Kita, Y.Yabumoto, N.Mori, and Y.Nishikawa: “Multi-objective optimization by means of the thermo-dynamical genetic algorithm,” *Parallel Problem Solving from Nature IV* (1996), pp.504-512.
- [61] K.Kropp, and U.G.Baitinger: “Optimization of fuzzy logic controller inference rules using a genetic algorithm,” *Proc. EUFIT'93* (Aachen, Germany, September 7-10, 1993), pp.1090-1096.
- [62] N.Kubota, T.Fukuda, and K.Shimajima: “Virus-evolutionary genetic algorithm for a self-organizing

- manufacturing system,” *Computers & Industrial Engineering Journal*, Vol.30, No.4, pp.1015-1026 (1996).
- [63] F.Kursawe: “A variant of evolution strategies for vector optimization,” in: H.-P.Schwefel and R.Männer (Eds.), *Parallel Problem Solving from Nature* (Springer-Verlag, Berlin, Germany, 1991), pp.193-197.
 - [64] C.C.Lee: “Fuzzy logic in control systems: fuzzy logic controller - Part I and Part II,” *IEEE Trans. on Systems, Man and Cybernetics*, Vol.20, No.2, pp.404-435 (1990).
 - [65] M.A.Lee, and H.Takagi: “Integrating design stages of fuzzy systems using genetic algorithms,” *Proc. FUZZ-IEEE’93* (San Francisco, USA, March 28-April 1, 1993), pp.612-617.
 - [66] M.A.Lee, H.Esbensen, and L.Lemaitre: “The design of hybrid fuzzy/evolutionary multi-objective optimization algorithms,” in: T.Furuhashi and Y.Uchikawa (Eds.), *Fuzzy Logic, Neural Networks, and Evolutionary Computation: Selected papers of IEEE/Nagoya University World Wisepersons Workshop* (Lecture note in Artificial Intelligence Vol.1152, Springer-Verlag, Berlin, Germany, 1996), pp.1-20.
 - [67] C.T.Lin, and C.S.G.Lee: “Neural-network-based fuzzy logic control and decision system,” *IEEE Trans. on Computers*, Vol.40, No.12, pp.1320-1336 (1991).
 - [68] J.Liska, and S.S.Melsheimer: “Complete design of fuzzy logic systems using genetic algorithms,” *Proc. FUZZ-IEEE’94* (Orlando, USA, June 26-29, 1994), pp.1377-1382.
 - [69] Z.Lomnicki: “A branch- and -bound algorithm for the exact solution of the three-machine scheduling problem,” *Operational Research Quarterly*, Vol.16, No.1, pp.89-107 (1965).
 - [70] B.Manderick, and P.Spiessens: “How to select genetic operators for combinatorial optimization problems by analyzing their fitness landscape,” *Computational Intelligence Imitating Life* (IEEE Press Marketing, New York, USA, 1994), 170-181.
 - [71] S.Matsushita, A.Kuromiya, M.Yamaoka, T.Furuhashi, and Y.Uchikawa: “Determination of antecedent structure for fuzzy modeling using genetic algorithm,” *Proc. 3rd IEEE ICEC* (Nagoya, Japan, May 20-22, 1996), pp.235-238.
 - [72] S.Mitra, and S.K.Pal: “Self-organizing neural network as a fuzzy classifier,” *IEEE Trans. on Systems, Man, and Cybernetics*, Vol.24, No.3, pp.385-399 (1994).
 - [73] S. Mitra: “Fuzzy MLP based expert system for medical diagnosis,” *Fuzzy Sets and Systems*, Vol.65, No.2/3, pp.285-296 (1994).
 - [74] K.Morizawa, H.Nagasawa, and N.Nishiyama: “Two-machine flowshop scheduling to minimize makespan, total flow time and maximum tardiness,” *Journal of Japan Industrial Management Association*, Vol.43, No.3, pp.186-192 (1992, in Japanese).
 - [75] K.Morizawa, H.Nagasawa, and N.Nishiyama: “A new procedure for generating initial solutions in a multiobjective scheduling method using complex random sampling,” *Journal of Japan Industrial Management Association*, Vol.44, No.6, pp.510-516 (1994, in Japanese).
 - [76] K.Morizawa, T.Ono, H.Nagasawa, and N.Nishiyama: “An interactive approach for searching a preferred schedule,” *Journal of Japan Industrial Management Association*, Vol.44, No.4, pp.277-283 (1993, in Japanese).
 - [77] T.Murata, and H.Ishibuchi: “MOGA: Multi-objective genetic algorithms,” *Proc. 2nd IEEE ICEC* (Perth, Australia, November 26-December 1, 1995), pp.289-294.
 - [78] T.Murata, and H.Ishibuchi: “Flowshop scheduling by genetic algorithms and its application to multi-objective problems,” *Trans. of the Society of Instrument and Control Engineers*, Vol.31, No.5, pp.583-590 (1996, in Japanese).
 - [79] T.Murata, and H.Ishibuchi: “Performance evaluation of genetic operations for flowshop scheduling,” *Trans. of the Institute of Systems, Control and Information Engineers*, Vol.9, No.10, pp.482-484 (1996, in Japanese).
 - [80] T.Murata, and H.Ishibuchi: “Positive and negative combination effects of crossover and mutation operators in sequencing problems,” *Proc. 3rd IEEE ICEC* (Nagoya, Japan, May 20-22, 1996), pp.170-175.
 - [81] T.Murata, H.Ishibuchi, and H.Tanaka: “Multi-objective genetic algorithm and its applications to flowshop

- scheduling,” *Computers & Industrial Engineering Journal*, Vol.30, No.4, pp.957-968 (1996).
- [82] T.Murata, H.Ishibuchi, and H.Tanaka: “Genetic algorithms for flowshop scheduling problems,” *Computers & Industrial Engineering Journal*, Vol.30, No.4, pp.1061-1071 (1996).
 - [83] K.Nakaoka, T.Furuhashi, and Y.Uchikawa: “A study on apportionment of Credits of fuzzy classifier system for knowledge acquisition of large scale systems,” *Proc. FUZZ-IEEE’94* (Orlando, USA, June 26-29, 1994), pp.1797-1800.
 - [84] M.Nawaz, Jr.E.E.Enscore, and I.Ham: “A heuristic algorithm for m -machine, n -job flowshop sequencing problem,” *OMEGA*, Vol.11, pp.91-98 (1983).
 - [85] H.Nomura, I.Hayashi, and N.Wakami: “A learning method of fuzzy inference rules by descent method,” *Proc. FUZZ-IEEE’92* (San Diego, USA, March 8-12, 1992), pp.203-210.
 - [86] H.Nomura, I.Hayashi, and N.Wakami: “A self-tuning method of fuzzy reasoning by genetic algorithm,” *Proc. the 1992 International Fuzzy Systems and Intelligent Control Conference* (Louisville, USA, March 16-18, 1992), pp.236-245.
 - [87] K.Nozaiki, H.Ishibuchi, and H.Tanaka: “Trainable fuzzy classification systems based on fuzzy if-then rules,” *Proc. FUZZ-IEEE’94* (Orlando, USA, June 26-29, 1994), pp.498-502.
 - [88] K.Nozaiki, H.Ishibuchi, and H.Tanaka: “Adaptive fuzzy-rule-based classification systems,” *IEEE Trans. on Fuzzy Systems*, Vol.4, No.3, pp.238-250 (1996).
 - [89] I.Oliver, D.Smith, and J.Holland: “A study of permutation crossover operators on the traveling salesman problem,” *Proc. 2nd ICGA* (Massachusetts Institute of Technology, USA, July 28-31, 1987), pp.224-230.
 - [90] I.H.Osman, and C.N.Potts: “Simulated annealing for permutation flow-shop scheduling,” *OMEGA*, Vol.17, No.6, 551-557 (1989).
 - [91] S.K.Pal, and S.Mitra: “Multilayer perceptron, fuzzy sets, and classification,” *IEEE Trans. on Neural Networks*, Vol.3, No.5, pp.683-697 (1992).
 - [92] D.Park, A.Kandel, and G.Langholz: “Genetic-based new fuzzy reasoning models with application to fuzzy control,” *IEEE Trans. on Systems, Man, and Cybernetics*, Vol.24, pp.39-47 (1994).
 - [93] A.Parodi, and P.Bonelli: “A new approach to fuzzy classifier system,” *Proc. 5th ICGA* (University of Illinois at Urbana-Champaign, USA, July 17-21, 1993), pp.223-230.
 - [94] W.Pedrycz: “Fuzzy neural networks with reference neurons as pattern classifiers,” *IEEE Trans. on Neural Networks*, Vol.3, No.5, pp.770-775 (1992).
 - [95] C.Rajendran: “Two-stage flowshop scheduling problem with bicriteria,” *Journal of Operations Research Society*, Vol.43, No.9, pp.871-884 (1992).
 - [96] D.E.Rumelhart, G.E.Hinton, and R.J.Williams: “Learning internal representations by error propagation,” in: D.E.Rumelhart and J.L.MacClelland (Eds.), *Parallel Distributed Processing: Volume 1* (MIT Press, Cambridge, USA, 1986), pp. 318-362.
 - [97] A.Satyadas, and K.Krishnakumar: “GA-optimized fuzzy controller for spacecraft attitude control,” *Proc. FUZZ-IEEE’94* (Orlando, USA, June 26-29, 1994), pp.1979-1984.
 - [98] J.D.Schaffer: “Multiple objective optimization with vector evaluated genetic algorithms,” *Proc. 1st ICGA* (Carnegie-Mellon University, USA, July 24-26, 1985), pp.93-100.
 - [99] K.Shimajima, T.Fukuda, and Y.Hasegawa: “Self-tuning fuzzy modeling with adaptive membership function, rules, and hierarchical structure based on genetic algorithm,” *Fuzzy Sets and Systems*, Vol.71, pp.295-309 (1995).
 - [100] P.K.Simpson: “Fuzzy min-max neural networks - Part I: Classification,” *IEEE Trans. on Neural Networks*, Vol.3, No.5, pp.776-786 (1992).
 - [101] T.Starkweather, S.McDaniel, K.Mathias, D.Whitley, and C.Whitley: “A comparison of genetic sequencing operators,” *Proc. 4th ICGA* (San Diego, USA, July 13-16, 1991), pp.69-76.
 - [102] M.Sugeno: “An introductory survey of fuzzy control,” *Information Sciences*, Vol.36, pp.59-83 (1985).
 - [103] M.Sugeno, and T.Yasukawa: “A fuzzy-logic-based approach to qualitative modeling,” *IEEE Trans. on*

Fuzzy Systems, Vol.1, No.1, pp.7-31 (1993).

- [104] S.F.Smith: "A learning system based on genetic algorithms," *Ph.D. Dissertation* (University of Pittsburgh, Pittsburgh, USA, 1980).
- [105] H.Surmann, A.Kanstein, and K.Goser: "Self-organizing and genetic algorithms for an automatic design of fuzzy control and decision systems," *Proc. EUFIT'93* (Aachen, Germany, September 7-10, 1993), pp.1097-1104.
- [106] G.Syswerda: "Scheduling optimization using genetic algorithms," in: L.Davis (Ed.) *Handbook of Genetic Algorithms* (Van Nostrand Reinhold, New York, USA, 1991), pp.332-349.
- [107] G.Syswerda: "Uniform crossover in genetic algorithms," *Proc. 3rd ICGA* (George Mason University, USA, June 4-7, 1989), pp.2-9.
- [108] E.Taillard: "Some efficient heuristic methods for the flowshop sequencing problem," *European Journal of Operational Research*, Vol.47, No.1, pp.65-74 (1990).
- [109] H.Takagi, and I.Hayashi: "NN-driven fuzzy reasoning," *International Journal of Approximate Reasoning*, Vol.5, pp.191-212 (1991).
- [110] T.Takagi, and M.Sugeno: "Fuzzy identification of systems and its applications to modeling and control," *IEEE Trans. on Systems, Man and Cybernetics*, Vol.15, No.1, pp.116-132 (1985).
- [111] H.Tamaki, M.Mori, M.Araki, Y.Mishima, and H.Ogai: "Multi-criteria Optimization by genetic algorithms: A case of scheduling in hot rolling process," *Proc. APORS'94* (Fukuoka, Japan, July 26-29, 1994), pp.374-381.
- [112] H.Tamaki, M.Mori, and M.Araki: "Generation of a set of Pareto-optimal solutions by genetic algorithms," *Transactions of the Society of Instrument and Control Engineers*, Vol.31, No.8, pp.1185-1192 (1995, in Japanese).
- [113] P.Thrift: "Fuzzy logic synthesis with genetic algorithms," *Proc. 4th ICGA* (San Diego, USA, July 13-16, 1991), pp.509-513.
- [114] V.Uebele, S.Abe, and M.-S.Lan: "A neural-network-based fuzzy classifier," *IEEE Trans. on Systems, Man, and Cybernetics*, Vol. 25, No.2, pp.353-361 (1995).
- [115] N.L.J.Ulder, E.H.L.Aarts, H.-J.Bandelt, P.J.M.van Laarhoven, and E.Pesch: "Genetic local search algorithms for the traveling salesman problem," in: H.-P.Schwefel and R.Manner (Eds.), *Parallel Problem Solving from Nature* (Springer-Verlag, Berlin, Germany, 1991), pp.109-116.
- [116] M.Valenzuela-Rendon: "The fuzzy classifier system: A classifier system for continuously varying variables," *Proc. 4th ICGA* (San Diego, USA, July 13-16, 1991), pp.346-353.
- [117] L.X.Wang, and J.M.Mendel: "Generating fuzzy rules by learning from examples," *IEEE Trans. on Systems, Man, and Cybernetics*, Vol.22, No.6, pp.1414-1427 (1992).
- [118] D.Whitley, T.Starkweather, and D.Fuquay: "Scheduling problems and traveling salesmen: The genetic edge recombination operator," *Proc. 3rd ICGA* (George Mason University, USA, June 4-7, 1989), pp.133-140.
- [119] M.Widmer, and A.Hertz: "A new heuristic method for the flowshop sequencing problem," *European Journal of Operational Research*, Vol.41, No.2, pp.186-193 (1990).
- [120] Y.Yuan, and H.Zhuang: "A genetic algorithm for generating fuzzy classification rules," *Fuzzy Sets and Systems*, Vol.84, No.1, pp.1-19 (1996).
- [121] L.A.Zadeh: "Fuzzy sets," *Information and Control*, Vol.8, pp.338-353 (1965).

PUBLISHED PAPERS BY THE AUTHOR

A. In Books

- [1] Hisao Ishibuchi, and Tadahiko Murata: "A genetic-algorithm-based fuzzy partition method for pattern classification problems," in: F.Herrera and J.L.Verdegay (Eds.), *Genetic Algorithms and Soft Computing* (Studies in Fuzziness, Vol.8, Phisyca-Verlag, Heidelberg, Germany, August, 1996), pp.555-578.
- [2] Hisao Ishibuchi, Tadahiko Murata, and Hideo Tanaka: "Construction of fuzzy classification systems with linguistic if-then rules using genetic algorithms," in: Sankar K.Pal and Paul P.Wang (Eds.), *Genetic Algorithms for Pattern Recognition* (CRC Press, Boca Raton, Florida, USA, September, 1996), pp.227-251.
- [3] Hisao Ishibuchi, Tomoharu Nakashima, and Tadahiko Murata: "A fuzzy classifier system that generates linguistic rules for pattern classification problems," in: Takeshi Furuhashi and Yoshiki Uchikawa (Eds.), *Fuzzy Logic, Neural Networks, and Evolutionary Computation* (Lecture Notes in Artificial Intelligence, Vol.1152, IEEE/Nagoya University World Wisepersons Workshop, Nagoya, Japan, November 1995, Selected Papers, Springer-Verlag, Berlin, Germany, October, 1996), pp.35-54.
- [4] Hisao Ishibuchi, Tadahiko Murata, and Tomoharu Nakashima: "Genetic-algorithm-based approaches to classification problems," in: Witold Pedrycz (Ed.), *Fuzzy Evolutionary Computation* (Kluwer Academic Publishers, 1997, to be published).

B. In Transactions and Journals

- [5] Hisao Ishibuchi, Naohisa Yamamoto, Tadahiko Murata, and Hideo Tanaka: "Genetic algorithms and neighborhood search algorithms for fuzzy flowshop scheduling problems," *Fuzzy Sets and Systems*, Vol.67, No.1, pp.81-100 (October, 1994).
- [6] Tadahiko Murata, Hisao Ishibuchi, and Hideo Tanaka: "Flowshop scheduling by genetic algorithm and its application to multi-objective problems," *Transactions of the Society of Instrument and Control Engineers*, Vol.31, No.5, pp.583-590 (May, 1995, in Japanese).
- [7] Hisao Ishibuchi, Tadahiko Murata, and Hideo Tanaka: "Construction of fuzzy classification systems using genetic algorithms," *Journal of Japan Society for Fuzzy Theory and Systems*, Vol.7, No.5, pp.1022-1040 (October, 1995, in Japanese).
- [8] Hisao Ishibuchi, and Tadahiko Murata: "Selection of linguistic classification rules using two-objective genetic algorithms," *Journal of Japan Society for Fuzzy Theory and Systems*, Vol.7, No.5, pp.1041-1049 (October, 1995, in Japanese).
- [9] Hisao Ishibuchi, and Tadahiko Murata: "A learning method of fuzzy classification rules by a genetic algorithm," *Transaction of the Institute of Electronics, Information and Communication Engineers Series A*, Vol.J79-A, No.7, pp.1289-1297 (July, 1996, in Japanese).
- [10] Tomoharu Nakashima, Tadahiko Murata, and Hisao Ishibuchi: "Acquisition of linguistic classification rules by a classifier system," *Journal of Japan Industrial Management Association*, Vol.47, No.3, pp.199-206 (August, 1996, in Japanese).
- [11] Tadahiko Murata, Hisao Ishibuchi, and Hideo Tanaka: "Multi-objective genetic algorithm and its application to flowshop scheduling," *Computers and Industrial Engineering Journal*, Vol.30, No.4, pp.957-968 (September, 1996).
- [12] Tadahiko Murata, Hisao Ishibuchi, and Hideo Tanaka: "Genetic algorithms for flowshop scheduling

- problems,” *Computers and Industrial Engineering Journal*, Vol.30, No.4, pp.1061-1071 (September, 1996).
- [13] Tadahiko Murata, and Hisao Ishibuchi: “Performance evaluation of genetic operations for flowshop scheduling,” *Transaction of the Society of Instrument and Control Engineers*, Vol.9, No.10, pp.482-484 (October, 1996, in Japanese).
 - [14] Hisao Ishibuchi, Tadahiko Murata, and I.B.Türkşen : “Single-objective and two-objective genetic algorithms for selecting linguistic rules for pattern classification problems,” *Fuzzy Sets and Systems* (to be published).
 - [15] Hisao Ishibuchi, Tomoharu Nakashima, and Tadahiko Murata: “Comparison between Michigan approach and Pittsburgh approach to the design of fuzzy classification systems,” *Transaction of the Institute of Electronics, Information and Communication Engineers Series A* (to be published in Japanese).

C. In International Conference Proceedings

- [16] Tadahiko Murata, and Hisao Ishibuchi: “Performance evaluation of genetic algorithms for flowshop scheduling problems,” *Proc. of The 1st IEEE Conference on Evolutionary Computation* (Orlando, USA, June 27-29, 1994), pp.812-817.
- [17] Tadahiko Murata, Hisao Ishibuchi, and Hideo Tanaka: “Crossover and mutation operators in genetic algorithms for flowshop scheduling problems,” *Proc. of The 3rd Conference of the Association of Asian-Pacific Operational Research Societies with in IFORS* (Fukuoka, Japan, July 26-29, 1994), p.140.
- [18] Tadahiko Murata, and Hisao Ishibuchi: “Adjusting membership functions of fuzzy classification rules by genetic algorithms,” *Proc. of FUZZ-IEEE / IFES '95* (Yokohama, Japan, March 20-24, 1995), pp.1819-1824.
- [19] Hisao Ishibuchi, Tadahiko Murata, and I.B.Türkşen : “A genetic-algorithm-based approach to the selection of linguistic classification rules,” *Proc. of EUFIT '95* (Aachen, Germany, August 28-31, 1995), pp.1415-1419.
- [20] Hisao Ishibuchi, Tadahiko Murata, and I.B.Türkşen : “Selecting linguistic classification rules by two-objective genetic algorithms,” *Proc. of The 1995 IEEE International Conference on Systems, Man and Cybernetics* (Vancouver, Canada, October 22-25, 1995), pp.1410-1415.
- [21] Hisao Ishibuchi, Tomoharu Nakashima, and Tadahiko Murata: “A fuzzy classifier system for generating linguistic classification rules,” *Proc. of The 1995 IEEE/Nagoya University WWW on Fuzzy Logic and Neural Networks/Evolutionary Computation* (Nagoya, Japan, November 14-15, 1995), pp.22-27.
- [22] Tadahiko Murata, and Hisao Ishibuchi: “MOGA: Multi-objective genetic algorithms,” *Proc. of The 2nd IEEE International Conference on Evolutionary Computation* (Perth, Australia, November 29-December 1, 1995), pp.289-294.
- [23] Hisao Ishibuchi, Tomoharu Nakashima, and Tadahiko Murata: “A fuzzy classifier system that generates fuzzy if-then rules for pattern classification problems,” *Proc. of The 2nd IEEE International Conference on Evolutionary Computation* (Perth, Australia, November 29-December 1, 1995), pp.759-764.
- [24] Hisao Ishibuchi, and Tadahiko Murata: “Multi-objective genetic local search algorithm,” *Proc. of The 3rd IEEE International Conference on Evolutionary Computation* (Nagoya, Japan, May 20-22, 1996), pp.119-124.
- [25] Tadahiko Murata, and Hisao Ishibuchi: “Positive and negative combination effects of crossover and mutation operators in sequencing problems,” *Proc. of The 3rd IEEE International Conference on Evolutionary Computation* (Nagoya, Japan, May 20-22, 1996), pp.170-175.
- [26] Hisao Ishibuchi, Tomoharu Nakashima, and Tadahiko Murata: “Genetic-algorithm-based approaches to the design of fuzzy systems for multi-dimensional pattern classification problems,” *Proc. of The 3rd IEEE International Conference on Evolutionary Computation* (Nagoya, Japan, May 20-22, 1996), pp.229-234.
- [27] Tadahiko Murata, Hisao Ishibuchi, and Hideo Tanaka: “Multi-objective genetic local search for flowshop scheduling,” *Proc. of The mini-Symposium on Genetic Algorithms and Engineering Design* (Ashikaga, Japan, May 24, 1996), pp.139-148.

- [28] Tadahiko Murata, and Hisao Ishibuchi: "Application of two-objective genetic algorithm to flowshop scheduling problems with interval processing time," *Proc. of EUFIT '96* (Aachen, Germany, September 2-5, 1996), pp.443-447.
- [29] Hisao Ishibuchi, Tadahiko Murata, and Kyu-Hung Lee: "Formulation of fuzzy flowshop scheduling problems with fuzzy processing time," *Proc. of The 5th IEEE International Conference on Fuzzy Systems* (New Orleans, USA, September 8-11, 1996), pp.199-205.
- [30] Tadahiko Murata, and Hisao Ishibuchi: "Multi-objective genetic algorithm for flowshop scheduling," *Proc. of The 1996 Pacific Conference on Manufacturing and Management* (Seoul, Korea, October 29-31, 1996), Vol.2, pp.353-358.
- [31] Hisao Ishibuchi, Tadahiko Murata, and Kyu-Hung Lee: "Flowshop scheduling with fuzzy processing time," *Proc. of The 1996 Pacific Conference on Manufacturing and Management* (Seoul, Korea, October 29-31, 1996), Vol.2, pp.359-364.
- [32] Hisao Ishibuchi, Tadahiko Murata, and Kyu-Hung Lee: "Relations between conventional scheduling problems and fuzzy scheduling problems," *Proc. of The 35th IEEE Conference on Decision and Control* (Kobe, Japan, December 11-13, 1996), pp.106-107.
- [33] Hisao Ishibuchi, Tomoharu Nakashima, and Tadahiko Murata: "Several variants of fuzzy classifier systems for pattern classification problems with continuous attributes," *Proc. of The 2nd International Symposium on Artificial Life and Robotics* (Beppu, Japan, February 18-20, 1997, accepted for publication).