

REFERENCES

- Aarts, E.H.L., and P.J.M. van Laarhoven, "Statistical cooling: a general approach to combinatorial optimization problems," *Philips Journal of Research*, Vol. 40, p. 193, 1985.
- Adachi, T., C.L. Moodie, and J.J. Talavage, "A pattern-recognition-based method for controlling a multi-loop production system," *International Journal of Production Research*, Vol. 26, pp. 1943-1957, 1988.
- Adachi, T., C.L. Moodie, and J.J. Talavage, "A rule-based control method for a multi-loop production system," *Artificial Intelligence in Engineering*, Vol. 4, pp. 115-125, 1989.
- Adams, J., E. Balas, and D. Zawack, "The shifting bottleneck procedure for job shop scheduling," *Management Science*, Vol. 34, pp. 391-401, 1988.
- Adelsberger, H.H., and J.J. Kanet, "The leitstand - a new tool in computer-integrated manufacturing," *Production and Inventory Management*, Vol. 32, No. 1, pp. 43-48, 1991.
- Adler, L., N. Fraiman, E. Kobacker, M. Pinedo, J.C. Plotnicoff, and T.-P. Wu, "BPSS: a scheduling support system for the packagin industry," *Operations Research*, Vol. 41, No. 4, pp. 641-648, 1993.
- Ahmadi, J.H., R.H. Ahmadi, S. Dasu, and C.S. Tang, "Batching and scheduling jobs on batch and discrete processors," Anderson Graduate School of Management, UCLA, 1989.
- Ahmadi, R. H., and U. Bagchi, "Improved lower bounds for minimizing the sum of completion times of n jobs over m machines in a flow shop," *European Journal of Operational Research*, Vol. 44, pp. 331-336, 1990.
- Ahn, B.-H., and J.-H. Hyun, "Single facility multi-class job scheduling," *Computers and Operations Research*, Vol. 17, No. 3, pp. 265-272, 1990.
- Atherton, R. W., "Factory scheduling using simulation models," Proceedings of the Third Symposium on Automated Integrated Circuit Manufacturing, Electrochemical Society, Princeton, New Jersey, 1988.
- Atherton, R. W., and M.A. Pool, "Validated simulation models for factory control," International Semiconductor Manufacturing Science Symposium, Semicon West, Burlingame, California, May 22-24, 1989.
- Bagchi, U., and R.H. Ahmadi, "An improved lower bound for minimizing weighted completion times with deadlines," *Operations Research*, Vol. 35, pp. 311-313, 1987.
- Bai, X., and S.B. Gershwin "A manufacturing scheduler's perspective on semiconductor fabrication," VLSI Memo No. 89-518, Massachusetts Institute of Technology, 1989.

- Bai, S.X., and S.B. Gershwin, "Scheduling manufacturing systems with work-in-process inventory," Proceedings, Twenty-ninth IEEE Conference on Decision and Control, Honolulu, Hawaii, December, 1990.
- Bai, S.X., and S.B. Gershwin, "Real-time production scheduling for a wafer fabrication facility," Research Report 92-19, Department of Industrial and Systems Engineering, University of Florida, Gainesville, Florida, 1992.
- Bai, X., N. Srivatsan, and S.B. Gershwin, "Hierarchical real-time scheduling of a semiconductor fabrication facility," Proceedings, Ninth IEEE International Electronics Manufacturing Technology Symposium, Washington, D.C., October 1-3, 1990.
- Baker, K.R., "Sequencing rules and due-date assignments in a job shop," *Management Science*, Vol. 30, pp. 1093-1104, 1984.
- Baker, K.R., *Elements of Sequencing and Scheduling*, Amos Tuck School of Business Administration, Dartmouth College, Hanover, New Hampshire, 1992.
- Baker, K.R., and J.W.M. Bertrand, "A dynamic priority rule for sequencing against due-dates," *Journal of Operations Management*, Vol. 3, pp. 37-42, 1982.
- Baker, K.R., and J.J. Kanet, "Job shop scheduling with modified due dates," *Journal of Operations Management*, Vol. 4, pp. 11-22, 1983.
- Barnes, J.W., and J.B. Chambers, "Solving the job shop scheduling problem using tabu search," Technical Report OPR91-06, Graduate Program in Operations Research, University of Texas at Austin, 1991.
- Barnes, J.W., and M. Laguna, "Solving the multiple-machine weighted flow time problem using tabu search," Technical Report Series, Graduate Program in Operations Research, University of Texas, Austin, 1992.
- Bean, J.C., "Genetics and random keys for sequencing and optimization," Technical Report 92-43, Department of Industrial and Operations Engineering, University of Michigan, Ann Arbor, Michigan, 1992.
- Bensana, E., G. Bel, and D. Dubois, "OPAL: a multi-knowledge-based system for industrial job-shop scheduling," *International Journal of Production Research*, Vol. 26, No. 5, pp. 795-819, 1988.
- Bhaskaran, K., and M. Pinedo, "Dispatching," Chapter 83, *Handbook of Industrial Engineering*, G. Salvendy, ed., J. Wiley, New York, 1991.
- Bianco, L., and S. Ricciardelli, "Scheduling of a single machine to minimize total weighted completion time subject to release dates," *Naval Research Logistics Quarterly*, Vol. 29, No. 1, pp. 151-161, 1982.
- Biegel, J.E., and J.J. Davern, "Genetic algorithms and job shop scheduling," *Computers and Industrial Engineering*, 19, pp. 81-91, 1990.
- Bitran, G.R., and D. Tirupati, "Planning and scheduling for epitaxial wafer production facilities," *Operations Research*, Vol. 36, pp. 34-49, 1988a.

- Bitran, G.R., and D. Tirupati, "Development and implementation of a scheduling system for a wafer fabrication facility," *Operations Research*, Vol. 36, pp. 377-395, 1988b.
- Blackstone, J.H., Jr., D.T. Phillips, and G.L. Hogg, "A state-of-the-art survey of dispatching rules for manufacturing job shop operations," *International Journal of Productions Research*, Vol. 20, pp. 27-45, 1982.
- Bruno, J., and P. Downey, "Complexity of task sequencing with deadlines, set-up times and changeover costs," *SIAM Journal of Computing*, Vol. 7, No. 4, pp. 393-404, 1978.
- Buffa, E. S., *Production Inventory Systems: Planning and Control*, Richard D. Irwin. Inc., Homewood, Illinois, 1968.
- Burman, D.Y., F.J. Gurrola-Gal, A. Nozari, S. Sathaye, and J.P. Sitarik, "Performance analysis techniques for IC manufacturing lines," *AT&T Technical Journal*, Vol. 65, pp. 46-57, 1986.
- Burns, F., and J. Rooker, "Extensions and comments regarding special cases of the three machine flow-shop problem," *Naval Research Logistics Quarterly*, Vol. 22, pp. 811-817, 1975.
- Cerny, V., "Thermodynamical approach to the traveling salesman problem: an efficient simulation algorithm," *Journal of Optimization Theory and Applications*, Vol. 45, p. 41, 1985.
- Chambers, R.J., R.L. Carraway, T.J. Lowe, and T.L. Morris, "Dominance and decomposition heuristics for single machine scheduling," *Operations Research*, Vol. 39, No. 4, pp. 639-647, 1991.
- Chen, H., J.M. Harrison, A. Mandelbaum, A. Van Ackere, and L.M. Wein, "Empirical evaluation of a queueing network model for semiconductor wafer fabrication," *Operations Research*, Vol. 36, pp. 202-215, 1988.
- Cleveland, G., and S. Smith, "Using genetic algorithms to schedule flow shop releases," in *Proceedings of the Third International Conference on Genetic Algorithms*, J.D. Schaffer, ed., Morgan Kaufmann, San Mateo, California, 1989.
- Coffman, E.G., A. Nozari, and M. Yannakakis, "Optimal scheduling of products with two subassemblies on a single machine," *Operations Research*, Vol. 37, No. 3, pp. 426-436, May-June, 1989.
- Conway, R.W., "Priority dispatching and job lateness in a job shop," *Journal of Industrial Engineering*, Vol. 16, pp. 228-237, 1965.
- Conway, R.W., W.L. Maxwell, and L.W. Miller, *Theory of Scheduling*, Addison-Wesley, Reading, Massachusetts, 1967.
- Corbett, C.J., and L.N. Van Wassenhove, "The natural drift: what happened to operations research?" *Operations Research*, Vol. 41, No. 4, pp. 625-640, 1993.
- Davis, L., "Job shop scheduling with genetic algorithms," in *Proceedings of an International Conference on Genetic Algorithms and their Applications*, J. Grefenstette, ed., Lawrence Erlbaum Associates, Hillsdale, New Jersey, 1985.
- Davis, L., ed., *Genetic Algorithms and Simulated Annealing*, Pitman Publishing, London, 1987.

- Davis, L., ed., *Handbook of Genetic Algorithms*, Van Nostrand Reinhold, New York, 1991.
- Day, J. E. and M. P. Hottenstein, "Review of sequencing research," *Naval Research Logistic Quarterly*, Vol. 17, pp. 11-39, 1970.
- Dayhoff, J.E., and R.W. Atherton, "Signature analysis: simulation of inventory, cycle time, and throughput trade-offs in wafer fabrication," *IEEE Transactions on Components, Hybrids, and Manufacturing Technology*, Vol. 9, pp. 498-507, 1986a.
- Dayhoff, J.E., and R.W. Atherton, "Signature analysis of dispatch schemes in wafer fabrication," *IEEE Transactions on Components, Hybrids, and Manufacturing Technology*, Vol. 9, pp. 518-525, 1986b.
- Dayhoff, J.E., and R.W. Atherton, "A model for wafer fabrication dynamics in integrated circuit manufacturing," *IEEE Transactions on Systems, Man, and Cybernetics*, Vol. 17, pp. 91-100, 1987.
- Dessouky, M.I., and J.S. Deogun, "Sequencing jobs with unequal ready times to minimize mean flow time," *SIAM Journal on Computing*, Vol. 10, No. 1, pp. 192-202, 1981.
- Dobson, G., U.S. Karmarkar, and J.L. Rummel, "Batching to minimize flow times on one machine," *Management Science*, Vol. 33, No. 6, pp. 784-799, June, 1987.
- Dobson, G., U.S. Karmarkar, and J.L. Rummel, "Batching to minimize flow times on parallel heterogeneous machines," *Management Science*, Vol. 35, No. 5, pp. 607-613, May, 1989.
- Emmons, H., "One machine sequencing to minimize mean flow time with minimum number tardy," *Naval Research Logistics Quarterly*, Vol. 22, pp. 585-592, 1975.
- Faaland, B., and T. Schmitt, "Cost-based scheduling of workers and equipment in a fabrication and assembly shop," *Operations Research*, Vol. 41, No. 2, pp. 253-268, 1993.
- Fisher, H., and G.L. Thompson, "Probabilistic learning combinations of local job-shop scheduling rules," in *Industrial Scheduling*, J.F. Muth and G.L. Thompson, eds., Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1963.
- Fordyce, K., R. Dunki-Jacobs, B. Gerard, R. Sell, and G. Sullivan, "Logistics Management System: an advanced decision support system for the fourth decision tier dispatch or short-interval scheduling," *Production and Operations Management*, Vol. 1, pp. 70-85, 1992.
- Fox, B. R., and M. B. McMahon, "Genetic operators for sequencing problems," Planning and Scheduling Group, McDonnell Douglas Space Systems, Houston, Texas, 1990.
- Fox, M.S., and S.F. Smith, "ISIS - a knowledge-based system for factory scheduling," *Expert Systems*, Vol. 1, No. 1, pp. 25-49, 1984.
- Fry, T.D., P.R. Philipoom, and J.H. Blackstone, "A simulation study of processing time dispatching rules," *Journal of Operations Management*, Vol. 7, pp. 77-92, 1988.
- Garey, M.R., and D.S. Johnson, *Computers and Intractability: a Guide to the Theory of NP-Completeness*, Freeman, San Francisco, 1979.
- Garey, M. R., D. S. Johnson, and R. Sethi, "The complexity of flowshop and jobshop scheduling," *Mathematics of Operations Research*, Vol. 1, pp. 117-129, 1976.

- Gazmuri, P.G., "Probabilistic analysis of a machine scheduling problem," *Mathematics of Operations Research*, Vol. 10, No. 2, pp. 328-339, 1985.
- Glassey, C.R., and R.G. Petrakian, "The use of bottleneck starvation avoidance with queue predictions in shop floor control," Research Report ESRC 89-23, University of California, Berkeley, 1989.
- Glassey, C.R., and M.G.C. Resende, "Closed-loop job release control for vlsi circuit manufacturing," *IEEE Transactions on Semiconductor Manufacturing*, Vol. 1, pp. 36-46, 1988a.
- Glassey, C.R., and M.G.C. Resende, "A scheduling rule for job release in semiconductor fabrication," *Operations Research Letters*, Vol. 7, pp. 213-217, 1988b.
- Glover, F., "Heuristics for integer programming using surrogate constraints," *Decision Sciences*, Vol. 8, No. 1, pp. 156-166, 1977.
- Glover, F., "Tabu Search - Part I," *ORSA Journal on Computing*, Vol. 1, pp. 190-206, 1989.
- Glover, F., "Tabu Search - Part II," *ORSA Journal on Computing*, Vol. 2, pp. 4-32, 1990.
- Glover, F., E. Taillard, and D. de Werra, "A user's guide to tabu search," Graduate School of Business, University of Colorado, Boulder, Colorado, 1991.
- Goldberg, D.E., *Genetic Algorithms in Search, Optimization, and Machine Learning*, Addison-Wesley, Reading, Massachusetts, 1989.
- Golovin, J.J., "A total framework for semiconductor production planning and scheduling," *Solid State Technology*, pp. 167-170, May, 1986.
- Gong, L., and H. Matsuo, "Stabilizing work-in-process and smoothing production in a production system with random yield," Graduate School of Business, University of Texas, Austin, May, 1990a.
- Gong, L., and H. Matsuo, "A control policy for a manufacturing system with random yield and rework," Graduate School of Business, University of Texas, Austin, September, 1990b.
- Gonzalez, T., and S. Sahni, "Flowshop and jobshop schedules: complexity and approximation," *Operations Research*, Vol. 26, pp. 36-52, 1978.
- Grabowski, J., E. Skubalska, and C. Smutnicki, "On flow shop scheduling with release and due dates to minimize maximum lateness," *Journal of the Operational Research Society*, Vol. 34, pp. 615-620, 1983.
- Graves, S.C., H.C. Meal, D. Stefek, and A.H. Zeghmi, "Scheduling of re-entrant flow shops," *Journal of Operations Management*, Vol. 3, pp. 197-207, 1983.
- Green, G.I., and L.B. Appel, "An empirical analysis of job shop dispatch rule selection," *Journal of Operations Management*, Vol. 1, pp. 197-203, 1981.
- Gupta, J.N.D., "Optimal schedules for single facility with classes," *Computers and Operations Research*, Vol. 11, pp. 409-413, 1984.

- Gupta, J.N.D., "Single facility scheduling with multiple job classes," *European Journal of Operational Research*, Vol. 8, pp. 42-45, 1988a.
- Gupta, J.N.D., "Two-stage, hybrid flowshop scheduling problem," *Journal of the Operational Research Society*, Vol. 39, No. 4, pp. 359-364, 1988b.
- Gupta, J.N.D., and E.A. Tunc, "Schedule for a two-stage hybrid flowshop with parallel machines at the second stage," *International Journal of Production Research*, Vol. 29, No. 7, pp. 1489-1502, 1991.
- Hadavi, K., and K. Voigt, "An integrated planning and scheduling environment," Proceedings Simulation and Artificial Intelligence in Manufacturing, Society of Manufacturing Engineers, Long Beach, California, October 14-16, 1987.
- Hadavi, K., W.L. Hsu, T. Chen, and C.N. Lee, "An architecture for real time distributed scheduling," working paper, Siemens Corporate Research, 1991.
- Hariri, A. M. A., and C. N. Potts, "An algorithm for single machine sequencing with release dates to minimize total weighted completion time," *Discrete Applied Mathematics*, Vol. 5, pp. 99-109, 1983.
- Hariri, A. M. A., and C. N. Potts, "A branch and bound algorithm to minimize the number of late jobs in a permutation flow-shop," *European Journal of Operational Research*, 38, pp. 228-237, 1989.
- Harrison, J.M., C.A. Holloway, and J.M. Patell, "Measuring delivery performance: a case study from the semiconductor industry," presented at the "Measuring Manufacturing Performance" colloquium, Harvard Business School, Cambridge, Massachusetts, January 25-26, 1989.
- Herrmann, J.W., C.-Y. Lee, and J.L. Snowdon, "A classification of static scheduling problems," in *Complexity in Numerical Optimization*, P.M. Pardalos, ed., pp. 203-253, World Scientific, River Edge, New Jersey, 1993.
- Ho, J.C., "Minimizing the number of tardy jobs with two job classes," Division of Business, Northeast Missouri State University, 1992.
- Holland, J.H., *Adaptation in Natural and Artificial Systems*, University of Michigan Press, Ann Arbor, Michigan, 1975.
- Holloway, C.A., and R.T. Nelson, "Job shop scheduling with due dates and variable processing times," *Management Science*, Vol. 20, pp. 1264-1275, 1974.
- Ignall, E., and L. Schrage, "Application of the branch and bound technique to some flow-shop scheduling problems," *Operations Research*, Vol. 15, pp. 400-412, 1965.
- Jackson, J.R., "Scheduling a production line to minimize maximum tardiness," Research Report 43, Management Science Research Project, University of California, Los Angeles, 1955.
- Jackson, J.R., "Networks on waiting lines," *Operations Research*, Vol. 5, 1967.
- Jacobs, F.R., "OPT uncovered: concepts behind the system," *Industrial Engineering*, Vol. 16, No. 10, pp. 32-41, 1984.

- Johnson, S.M., "Optimal two- and three-stage production schedules with setup times included," *Naval Research Logistics Quarterly*, Vol. 1, pp. 61-68, 1954.
- Kanet, J.J., and J.C. Hayya, "Priority dispatching with operation due-dates in a job shop," *Journal of Operations Management*, Vol. 2, pp. 155-163, 1982.
- Kirkpatrick, S., C.D. Gelatt, and M.P. Vecchi, "Optimization by simulated annealing," *Science*, Vol. 220, p. 671, 1983.
- Kise, H., T. Ibaraki, and H. Mine, "A solvable case of the one-machine scheduling problem with ready and due times", *Operations Research*, Vol. 26, pp. 121-126, 1978.
- Kohler, W.H., and K. Steiglitz, "Exact, approximate, and guaranteed accuracy algorithms for the flow-shop problem $n/2/F/F_{avg}$," *Journal of the Association for Computing Machinery*, Vol. 22, pp. 106-114, 1975.
- Koulamas, C.P., and M.L. Smith, "Look-ahead scheduling for minimizing machine interference," *International Journal of Productions Research*, Vol. 26, pp. 1523-1533, 1988.
- Krone, M. J., and K. Steiglitz, "Heuristic-programming solution of a flowshop-scheduling problem," *Operations Research*, Vol. 22, pp. 629-638, 1974.
- Kubiak, W., S.X.C. Lou, and Y.M. Wang, "Mean flow time minimization in re-entrant job shops with hub," Faculty of Management, University of Toronto, July 17, 1990.
- van Laarhoven, P.J.M., E.H.L. Aarts, and J.K. Lenstra, "Job shop scheduling by simulated annealing," Report OS-R8809, Centre for Mathematics and Computer Science, 1988.
- Lageweg, B. J., J. K. Lenstra, and A. H. G. Rinnooy Kan, "A general bounding scheme for the permutation flow-shop problem," *Operations Research*, Vol. 26, No. 1, pp. 53-67, 1978.
- Laguna, M., J.W. Barnes, and F. Glover, "Tabu search methods for a single machine scheduling problem," Technical Report Series, Graduate Program in Operations Research, University of Texas, Austin, 1989.
- Laguna M., and F. Glover, "Integrating target analysis and tabu search for improved scheduling systems," Graduate School of Business, University of Colorado, Boulder, Colorado, 1991.
- Lawler, E.L., "Scheduling a single machine to minimize the number of late jobs," Preprint, Computer Science Division, University of California, Berkeley, 1982.
- Leachman, R.C., "Preliminary design and development of a corporate-level production planning system for the semiconductor industry," Operations Research Center, University of California, Berkeley, February, 1986.
- Leachman, R.C., M. Solorzano, and C.R. Glassey, "A queue management policy for the release of factory work orders," Research Report 88-19, Engineering Systems Research Center, University of California at Berkeley, 1988.
- Leachman, R.C., and V.S. Sohoni, "Automated shift scheduling as a tool for problem identification and people management in semiconductor factories," University of California, Berkeley, California.

- Lee, C.-Y., T.C.E. Cheng, and B.M.T. Lin, "Exact and approximate solutions to the 3-machine assembly-type flowshop scheduling problem to minimize the makespan," *Management Science*, Vol. 39, No. 5, pp. 616-625, 1993.
- Lee, C.-Y., and J.W. Herrmann, "A three-machine scheduling problem with look-behind characteristics," Research Report 93-11, Department of Industrial and Systems Engineering, University of Florida, Gainesville, Florida, 1993.
- Lee, C.-Y., L.A. Martin-Vega, R. Uzsoy, and J. Hinchman, "Implementation of a decision support system for scheduling semiconductor testing operations," to appear in *Journal of Electronic Manufacturing*, 1993.
- Lee, C.-Y., R. Uzsoy, and L.A. Martin-Vega, "Efficient algorithms for scheduling semiconductor burn-in operations," *Operations Research*, Vol. 40, No. 4, pp. 764-775, 1992.
- Lenstra, J.K., A.H.G. Rinnooy Kan, and P. Brucker, "Complexity of machine scheduling problems," *Annals of Discrete Mathematics*, Vol. 1, pp. 343-362, 1977.
- Liepins, G.E., and M.R. Hilliard, "Genetic algorithms: foundations and applications," *Annals of Operations Research*, Vol. 21, p. 31-58, 1989.
- Liu, J., and B.L. MacCarthy, "Effective heuristics for the single machine sequencing problem with ready times," *International Journal of Production Research*, Vol. 29, No. 8, pp. 1521-1533, 1991.
- Lou, S.X.C., and P.W. Kager, "A robust control policy for vlsi wafer fabrication," *IEEE Transactions on Semiconductor Manufacturing*, Vol. 2, pp. 159-164, 1989.
- Lundrigan, R., "What is this thing they call OPT?" *Production and Inventory Management*, Vol. 27, pp. 2-12, 1986.
- Malek, M., M. Guruswamy, M. Pandya, H. Owens, "Serial and parallel simulated annealing and tabu search algorithms for the traveling salesman problem," *Annals of Operations Research*, Vol. 21, p. 59-84, 1989.
- Mason, A. J., and E. J. Anderson, "Minimizing flow time on a single machine with job classes and setup times," *Naval Research Logistics*, Vol. 38, pp. 333-350, 1991.
- Masuda, T., H. Ishii, and T. Nishida, "Some bounds on approximation algorithms for $n/m/1/L_{\max}$ and $n/2/F/L_{\max}$ scheduling problems," *Journal of the Operations Research Society of Japan*, Vol. 26, pp. 212-224, 1983.
- Matsuo, H., C.J. Suh, and R.S. Sullivan, "Controlled search simulated annealing for general job shop scheduling problem," Working Paper #03-04-88, 1988.
- Matsuo, H., C.J. Suh, and R.S. Sullivan, "A controlled search simulated annealing method for the single-machine weighted tardiness problem," *Annals of Operations Research*, Vol. 21, p. 85-108, 1989.
- Meleton, M.P., "OPT - fantasy or breakthrough," *Production and Inventory Management*, Vol. 27, pp. 13-21, 1986.

- Metropolis, N., A. Rosenbluth, M. Rosenbluth, A. Teller, and E. Teller, "Equation of state calculations by fast computing machines," *Journal of Chemical Physics*, Vol. 21, pp. 1087-1092, 1953.
- Mitten, L.G., "Sequencing n jobs on two machines with arbitrary time lags," *Management Science*, Vol. 5, pp. 293-298, 1958.
- Miyazaki, S., and N. Nishiyama, "Analysis of minimizing weighted mean flow-time in flow-shop scheduling," *Journal of the Operations Research Society of Japan*, Vol. 23, pp. 118-132, 1980.
- Miyazaki, S., N. Nishiyama, and F. Hashimoto, "An adjacent pairwise approach to the mean flow-time scheduling problem," *Journal of the Operations Research Society of Japan*, Vol. 21, pp. 287-299, 1978.
- Monma, C. L., and C. N. Potts, "On the complexity of scheduling with batch setup times," *Operations Research*, Vol. 37, No. 5, pp. 798-804, September-October, 1989.
- Moore, J.M., "An n job, one machine sequencing algorithm for minimizing the number of late jobs," *Management Science*, Vol. 15, pp. 102-109, 1968.
- Morton, T.E., *Heuristic Scheduling Systems*, Graduate School of Industrial Administration, Carnegie Mellon University, John Wiley, in press, 1992.
- Morton, T.E., S.R. Lawrence, S. Rajagopalan, and S. Kekre, "SCHED-STAR: a price-based shop scheduling module," *Journal of Manufacturing and Operations Management*, Vol. 1, pp. 131-181, 1988.
- Morton, T.E., and P. Ramnath, "Guided forward tabu/beam search for scheduling very large dynamic job shops. I: one machine weighted tardiness," Working paper 1992-47, Graduate School of Industrial Administration, Carnegie Mellon University, Pittsburgh, Pennsylvania, 1992.
- Najmi, A., and C. Lozinski, "Managing factory productivity using object-oriented simulation for setting shift production targets in VLSI manufacturing," Proceedings of the Autofact Conference, Society of Manufacturing Engineers, Detroit, Michigan, pp. 3.1-3.14, November, 1989.
- Nakano, R., and T. Yamada, "Conventional genetic algorithms for job shop problems," in *Proceedings of the Fourth International Conference on Genetic Algorithms*, R.K. Below and L.B. Booker, eds., Morgan Kaufmann Publishers, Inc., San Mateo, California, 1991.
- Ogbu, F.A., and D.K. Smith, "The application of the simulated annealing algorithm to the solution of the $n/m/C_{max}$ flowshop problem," *Computers and Operations Research*, Vol. 17, p. 243, 1990.
- Oliver, I.M., D.J. Smith, and J.R.C. Holland, "A study of permutation crossover operators on the traveling salesman problem," *Genetic Algorithms and their Applications: Proceedings of the Second International Conference on Genetic Algorithms*, J. Grefenstette, ed., Lawrence Erlbaum Associates, Hillsdale, New Jersey, 1987.
- Ou, J., and L.M. Wein, "Dynamic scheduling of a production/inventory system with by-products and random yield," Sloan School of Management, Massachusetts Institute of Technology, May, 1991.

- Ow, P.S., and S.F. Smith, "Viewing scheduling as an opportunistic problem-solving process," *Annals of Operations Research*, Vol. 12, pp. 85-108, 1988.
- Panwalker, S.S., and W. Iskander, "A survey of scheduling rules," *Operations Research*, Vol. 25, pp. 45-61, 1977.
- Posner, M.E., "Minimizing weighted completion times with deadlines," *Operations Research*, Vol. 33, pp. 562-274, 1985.
- Potts, C. N., "Scheduling two job classes on a single machine," *Computers and Operations Research*, Vol. 18, pp. 411-415, 1991.
- Potts, C.N., and L.N. van Wassenhove, "An algorithm for single machine sequencing with deadlines to minimize total weighted completion time," *European Journal of Operational Research*, Vol. 12, pp. 379-387, 1983.
- Rachamadugu, R.M., and T.E. Morton, "Myopic heuristics for the single machine weighted tardiness problem," Working Paper 30-82-83, Graduate School of Industrial Administration, Carnegie Mellon University, Pittsburgh, Pennsylvania, 1982.
- Rao, H.R., and B.P. Lingaraj, "Expert systems in production and operations management: classification and prospects," *Interfaces*, Vol. 18, No. 6, pp. 80-91, 1988.
- Reeves, C.R., "Improving the efficiency of tabu search for machine sequencing problems," *Journal of the Operational Research Society*, Vol. 44, No. 4, pp. 375-382, 1993.
- Rinaldi, G., and A. Sassano, "On a job scheduling problem with different ready times: some properties and a new algorithm to determine the optimal solution," Report R.77-24, Istituto di Automatica, Universita di Roma, 1977.
- Robinson, J.K., J.W. Fowler, and J.F. Bard, "The use of upstream and downstream information in scheduling semiconductor batch operations," Technical Report 93-06, Graduate Program in Operations Research, University of Texas, Austin, 1993.
- Sadeh, N., "MICRO-BOSS: a micro-opportunistic factory scheduler," Center for Integrated Manufacturing Decision Systems, The Robotics Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania, 1991.
- Sahney, V. K., "Single-server, two-machine sequencing with switching time," *Operations Research*, Vol. 20, pp. 24-36, 1972.
- Savell, D.V., R.A. Perez, and S.W. Koh, "Scheduling semiconductor wafer production: an expert system implementation," *IEEE Expert*, Vol. 4, pp. 9-15, 1989.
- Schutten, J.M.J., and W.H.M. Zijm, "Scheduling a single machine with release dates, due dates, and family setup times," Department of Mechanical Engineering, University of Twente, The Netherlands, 1993.
- Shanthikumar, J.G., "Scheduling jobs on one machine to minimize the maximum tardiness with minimum number tardy," *Journal of Computers and Operations Research*, Vol. 10, pp. 255-266, 1983.

- Smith, S.F., M.S. Fox, and P.S. Ow, "Constructing and maintaining detailed production plans: investigations into the development of knowledge-based factory scheduling systems," *AI Magazine*, Vol. 7, No. 4, pp. 45-61, 1986.
- Smith, W.E., "Various optimizers for single-stage production," *Naval Research Logistics Quarterly*, Vol. 3, pp. 59-66, 1956.
- Solorzano, M., "Workload Regulation of Semiconductor Fabrication Facilities," ESRC 89-1, University of California, Berkeley, January, 1989.
- Spence, A.M., and D.J. Welter, "Capacity Planning of a Photolithography Work Cell in a Wafer Manufacturing Line," Proceedings of the IEEE Conference on Robotics and Automation, pp. 702-708, 1987.
- Sriskandarajah, C., and S.P. Sethi, "Scheduling algorithms for flexible flowshops: worst and average case performance," *European Journal of Operational Research*, Vol. 43, pp. 143-160, 1989.
- Starkweather, T., S. McDaniels, K. Mathias, C. Whitley, and D. Whitley, "A comparison of genetic sequencing operators," in *Proceedings of the Fourth International Conference on Genetic Algorithms*, R.K. Below and L.B. Booker, eds., Morgan Kaufmann Publishers, Inc., San Mateo, California, 1991.
- Storer, R.H., S.Y.D. Wu, and R. Vaccari, "Local Search in Problem and Heuristic Space For Job Shop Scheduling," Working Paper, Department of Industrial Engineering, Lehigh University, 1990.
- Storer, R.H., S.Y.D. Wu, and R. Vaccari, "New search spaces for sequencing problems with application to job shop scheduling," *Management Science*, Vol. 38, No. 10, pp. 1495-1509, 1992.
- Sullivan, G., and K. Fordyce, "IBM Burlington's Logistics Management System," *Interfaces*, Vol. 20, pp. 43-64, 1990.
- Syswerda, G., "Uniform crossover in genetic algorithms," in *Proceedings of the Third International Conference on Genetic Algorithms*, J.D. Schaffer, ed., Morgan Kaufmann Publishers, Inc., San Mateo, California, 1989.
- Syswerda, G., "Schedule optimization using genetic algorithms," in *Handbook of Genetic Algorithms*, L. Davis, ed., Van Nostrand Reinhold, 1991.
- Szwarc, W., "Optimal two-machine orderings in the $3 \times n$ flow-shop problem," *Operations Research*, Vol. 25, pp. 70-77, 1977.
- Szwarc, W., "The flow-shop problem with mean completion time criterion," *IIE Transactions*, Vol. 15, pp. 172-176, 1983.
- Trilling, D. R., "Job shop simulation of orders that are networks," *Journal of Industrial Engineering*, Vol. 17, 1966.
- Uzsoy, R., C.-Y. Lee, and L.A. Martin-Vega, "A review of production planning and scheduling models in the semiconductor industry, part I: system characteristics, performance evaluation and production planning," *IIE Transactions*, Vol. 24, pp. 47-61, 1992a.

- Uzsoy, R., C.-Y. Lee, and L.A. Martin-Vega, "Scheduling semiconductor test operations: minimizing maximum lateness and number of tardy jobs on a single machine," *Naval Research Logistics*, Vol. 39, pp. 369-388, 1992b.
- Uzsoy, R., C.-Y. Lee, and L.A. Martin-Vega, "A review of production planning and scheduling models in the semiconductor industry, part II: shop floor control," to appear in *IIE Transactions*, 1993.
- Uzsoy, R., C.-Y. Lee, L.A. Martin-Vega, and J. Hinchman, "Scheduling Semiconductor Testing Operations: Optimization and Approximation," Proceedings, Joint U.S.-German Conference on New Directions for Operations Research in Manufacturing, Gaithersburg, Maryland, July 30-31, 1991a.
- Uzsoy, R., L.A. Martin-Vega, C.-Y. Lee, and P.A. Leonard, "Production Scheduling Algorithms for a Semiconductor Test Facility," *IEEE Transactions on Semiconductor Manufacturing*, 1991b.
- Vairaktarakis, G.L., and C.-Y. Lee, "The single machine problem to minimize total tardiness subject to minimum number of tardy jobs," to appear in *IIE Transactions*, 1993.
- Vakharia, A.J., and Y.L. Chang, "A simulated annealing approach to scheduling a manufacturing cell," *Naval Research Logistics*, Vol. 37, p. 559, 1990.
- Van de Velde, S.L., "Minimizing the sum of the job completion times in the two-machine flow shop by Lagrangian relaxation," *Annals of Operations Research*, Vol. 26, pp. 257-268, 1990.
- Vepsalainen, A.P.J., and T.E. Morton, "Priority rules for job shops with weighted tardiness costs," *Management Science*, Vol. 33, No. 8, pp. 1035-1047, 1987.
- Vepsalainen, A.P.J., and T.E. Morton, "Improving local priority rules with global lead-time estimates," *Journal of Manufacturing and Operations Management*, Vol. 1, pp. 102-118, 1988.
- Vollmann, T.E., "OPT as an enhancement to MRP II," *Production and Inventory Management*, Vol. 27, pp. 38-47, 1986.
- Vollmann, T.E., W.L. Berry, and D.C. Whybark, *Manufacturing Planning and Control Systems*, Second edition, Dow Jones-Irwin, Homewood, Illinois, 1988.
- Wein, L.M., "Scheduling semiconductor wafer fabrication" *IEEE Transactions on Semiconductor Manufacturing*, Vol. 1, pp. 115-130, 1988.
- Wein, L.M., "On the relationship between yield and cycle time in semiconductor wafer fabrication," Sloan School of Management, Massachusetts Institute of Technology, January, 1991.
- Wein, L.M., and P.B. Chevalier, "A broader view of the job-shop scheduling problem," *Management Science*, Vol. 38, No. 7, pp. 1018-1029, 1992.
- Whitley, D., "GENITOR: a different genetic algorithm," in *Proceedings of the Rocky Mountain Conference on Artificial Intelligence*, Denver, Colorado, 1988.

- Whitley, D., T. Starkweather, and D. Shaner, "The traveling salesman and sequence scheduling: quality solutions using genetic edge optimization," in *Handbook of Genetic Algorithms*, L. Davis, ed., Van Nostrand Reinhold, 1991.
- Widmer, M., and A. Hertz, "A new heuristic method for the flow shop sequencing problem," *European Journal of Operational Research*, Vol. 41, p. 186-193, 1989.
- Wittrock, R.J., "An adaptable scheduling algorithm for flexible flow lines," *Operations Research*, Vol. 36, No. 3, pp. 445-453, 1988.
- Woodruff, D. L., and M. L. Spearman, "Sequencing and batching for two classes of jobs with deadlines and setup times," *Production and Operations Management*, Vol. 1, pp. 87-102, 1992.
- Wu, S.D., R.H. Storer, and P.-C. Chang, "One-machine rescheduling heuristics with efficiency and stability as criteria," *Computers and Operations Research*, Vol. 20, No. 1, pp. 1-14, 1993.
- Zeestraten, M. J., "The look ahead dispatching procedure," *International Journal of Production Research*, Vol. 28, pp. 369-384, 1990.