

GARY J. KOEHLER

JOHN B. HIGDON EMINENT SCHOLAR OF INFORMATION SYSTEMS

Biography

Interests:

Machine Learning, Data-Mining, e-Commerce, Quantum Computing, Genetic Algorithm Theory, Expert Systems, Computer-Aided Decision Systems, Scheduling, Large-Scale Optimization, and Markov Decision Theory

Education:

Ph.D., 1973; M.S., 1970; B.S., 1969 – all at Purdue University.

Professor Koehler originally joined the University of Florida faculty in 1974 and rejoined in 1987 after leaving in 1978. He served as Chair of the department for the period 1990–1993 and 2009–2011. His recent teaching has been in business objects, quantum computing, Java, C#, support vector machines, genetic algorithm theory and e-commerce for the department's graduate programs. Professor Koehler has also been a faculty member at Purdue and Northwestern Universities, has worked as a consultant and expert witness for a number of firms, and was a co-founder of Micro Data Base Systems, Inc. in 1979, a firm in which he served as CEO for the period 1981–1987.

Papers:

"A Hybrid Method for Quantum Global Optimization," forthcoming *Journal of Global Optimization*, Y. Liu and G. J. Koehler.

"A Computational Analysis of Bundle Trading Markets Design for Distributed Resource Allocation," forthcoming *Information Systems Research*, Z. Guo, G. J. Koehler and A. B. Whinston.

"Minimal Equivalent Binary Knapsack Inequalities," *Infoms Journal on Computing*, 2011, G. J. Koehler.

"Detecting Management Fraud in Public Companies," *Management Science*, 2010, M. Cecchini, H. Aytug, G. J. Koehler and P. Pathak.

"Using Modifications to Grover's Search Algorithm for Quantum Global Optimization," *European Journal of Operational Research*, 2010, Y. Liu and G. J. Koehler.

"Entertainment without Borders: The Impact of Digital Technologies on Government Cultural Policy," *Journal of Management Information Systems*, 2010, H. K. Cheng, J. Feng, G. J. Koehler, S. Marston.

"Induction over Strategic Agents," *Information Systems Research*, 2010, F. Boylu, H. Aytug, G. J. Koehler.

"Making Words Work: Using Financial Text as a Predictor of Financial Events," *Decision Support Systems*, 2011, M. Cecchini, H. Aytug, G. J. Koehler, P. Pathak.

"Data Mining with Agent Gaming," *Information Technology and Management*, 2010, F. Boylu, H. Aytug, G. J. Koehler.

"Disclosure Control of Confidential Data by Applying PAC Learning Theory," *Journal of Database Management*, 2010, L. He, H. Aytug and G. J. Koehler.

"Induction over Constrained Strategic Agents," *European Journal on Operational Research*, 2010, F. Boylu, H. Aytug, G. J. Koehler.

"Principal-Agent Learning," *Decision Support Systems*, 2009, F. Boylu, H. Aytug, G. J. Koehler.

"Induction over Strategic Agents: A Genetic Algorithm Solution," *Annals of Operations Research*, 2010, F. Boylu, H. Aytug, G. J. Koehler.

"A Location-Allocation Problem for a Web Services Provider in a Competitive Market," *European Journal on Operational Research*, 2009, R. Aboolian, Y. Sun, and G. J. Koehler.

"Using Domain-Specific Knowledge in Generalization Error Bounds for Support Vector Machines," *Decision Support Systems*, 2009, E. Eryarsoy, H. Aytug, and G. J. Koehler.

"A Survey of Quantum Games," *Decision Support Systems*, 2008, H. Guo, J. Zhang and G. J. Koehler.

"Caveat Mercator in Electronic Commerce: An Update," *Decision Support Systems*, 2008, D. Conway and G. J. Koehler.

"Systems for Strategic Learning," *Information Systems and e-Business Management*, 2008, F. Boylu, H. Aytug and G. J. Koehler.

"Risk Minimization and Minimum Description for Linear Discriminant Functions," *Infornis Journal On Computing*, 2008, H. Aytug, L. He, and G. J. Koehler.

"Introducing a Feasible-Infeasible Two-Population (FI-2Pop) Genetic Algorithm for Constrained Optimization: Distance Tracing and No Free Lunch," *European Journal on Operational Research*, 2008, S. Kimbrough, G. J. Koehler, M. Lu, and D. Wood.

"A Market-Based Optimization Algorithm for Distributed Systems," *Management Science*, 2007, Z. Guo, G. J. Koehler and A. B. Whinston.

"Conditions that Obviate the No Free Lunch Theorems for Optimization," *Infornis Journal on Computing*, 2007, G. J. Koehler.

"Systems for Strategic Learning," F. Boylu, H. Aytug and G. J. Koehler, Handbook on Decision Support Systems, Eds: F. Burstein, C. Holsapple, Springer-Verlag, Heidelberg, 2007.

"The Effect of Multiple Optima on the Simple GA Run-time Complexity," *European Journal on Operational Research*, 2007, H. Aytug and G. J. Koehler.

"A General Steady State Distribution based Stopping Criteria for Finite Length Genetic Algorithms," *European Journal of Operational Research*, 2007, P. Pendharkar and G. J. Koehler.

"Market Segmentation within Consolidated E-Markets: A Generalized Combinatorial Auction Approach," *Journal of Management Information Systems*, 2006, J. Jones, R. Easley, G. J. Koehler.

"Learning Genetic Algorithm Parameters Using Hidden Markov Models," *European Journal of Operational Research*, 2006, J. Rees and G. J. Koehler.

"A Location Model for a Web Service Intermediary," *Decision Support Systems*, 2006, Y. Sun and G. J. Koehler.

"Scanning World Wide Web Documents with the Vector Space Model," *Decision Support Systems*, 2006, C. Aasheim and G. J. Koehler.

"A Heuristic for Winner Determination in Rule-Based Combinatorial Auctions," *Infoms Journal on Computing*, 2005, J. Jones and G. J. Koehler.

"Modeling Search in Group Decision Support Systems," *IEEE Transactions on Systems, Man, and Cybernetics Part C: Applications and Reviews*, 2004, J. Rees and G. J. Koehler.

"Pricing Combinatorial Auctions," *European Journal of Operational Research*, 2004, M. Xia, G. J. Koehler and A. B. Whinston.

"Mining Message Board Content on the World Wide Web for Organizational Information," Organizational Data Mining: Leveraging Enterprise Data Resources for Optimal Performance, Editors C. Barko and H. Nemati, 2004, C. Aasheim and G. J. Koehler.

"Price and Capacity Competition of Application Services Duopoly," *Information Systems and e-Business Management*, 2003, H. K. Cheng, H. Demirkan, and G. J. Koehler.

"Optimal Pricing Policies of Web-enabled Application Services," *Decision Support Systems*, 2003, H. K. Cheng and G. J. Koehler.

"Information Privacy and e-Business Activities: Key Issues for Managers," in Managing E-Businesses of the 21st Century, Eds: Sushil K. Sharma and Jatinder N.D. Gupta, 2002, J. Rees, G. J. Koehler, and Y. Ozcelik.

"A New Direction in Group Decision Support System Theory: An Evolutionary Approach to Group Decision Making," *Infoms Journal on Computing*, 2002," J. Rees and G. J. Koehler.

"Combinatorial Auctions using Rule-Based Bids," *Decision Support Systems*, 2002, J. Jones and G. J. Koehler.

"Evolution in Groups: A Genetic Algorithm Approach to Group Decision Support Systems," *Information Technology and Management*, 2002, J. Rees and G. J. Koehler.

"A Study on Coefficient Reduction of Binary Knapsack Inequalities," Business Modeling: Multidisciplinary Approaches - Economics, Operational and Information Systems Perspectives, Editors C. Holsapple, V. Jacob and H. Raghav Rao, 2001, Kluwer Academics, G. J. Koehler.

"Leadership and Group Search in Group Decision Support Systems," *Decision Support Systems*, 2000, J. Rees and G. J. Koehler.

"Interface Agents: Caveat Mercator in Electronic Commerce," *Decision Support Systems*, 2000, D. Conway and G. J. Koehler.

"New Stopping Criterion for Genetic Algorithms," *European Journal of Operational Research*, 2000, H. Aytug and G. J. Koehler.

"Electronic Commerce: Privacy, Security, and Control," Handbook on Electronic Commerce, Editors M. Shaw, R. Blanning, T. Stradler and A. Whinston, 2000, Springer, D. Conway and G. J. Koehler.

"An Investigation of GA Performance Results for Different Cardinality Alphabets," 1999, Evolutionary Algorithms, eds. L. Davis, K. De Jong, M. Vose and D. Whitley, J. Rees and G. J. Koehler.

"Learning by Objectives for Adaptive Shop-Floor Scheduling," *Decision Sciences*, 1998, S. Bhattacharyya and G. J. Koehler.

"General Cardinality Genetic Algorithms," *Evolutionary Computations*, 1997, G. J. Koehler, S. Bhattacharyya and M. D. Vose.

"New Directions in Genetic Algorithm Theory," *Annals of Operations Research*, 1997, G. J. Koehler.

"Genetic Learning Through Simulation: An Investigation in Shop-Floor Scheduling," *Annals of Operations Research*, H. Aytug, S. Bhattacharyya and G. J. Koehler, 1998.

"Diagonalizing the Simple GA Mixing Matrix," Foundations of Genetic Algorithms 4, Ed. R. K. Belew and M. Vose, Morgan Kaufman Publishers, San Francisco, CA, G. J. Koehler, 1997.

"A Markov Chain Analysis of General Cardinality Genetic Algorithms with Power of 2 Cardinality Alphabets," *European Journal of Operational Research*, 1996, H. Aytug, S. Bhattacharyya and G. J. Koehler.

"Stopping Criteria for Finite Length Genetic Algorithms," *Inform Journal on Computing*, H. Aytug and G. J. Koehler, 1996.

"PAC-Learning a Decision Tree with Pruning," *European Journal of Operational Research*, H. Kim and G. J. Koehler 1996.

"Theory and Practice of Decision Tree Induction for Expert Systems," *Omega International Journal Management Science*, 1995, H. Kim and G. J. Koehler.

"An Analysis of Genetic Algorithms of Cardinality $2v$," *Complex Systems*, 1994, S. Bhattacharyya and G. J. Koehler.

"The Accuracy of Decision Tree Induction in a Noisy Domain for Expert System Construction," *International Journal of Intelligent Systems in Accounting, Finance and Management*, 1994, H. Kim and G. J. Koehler.

"A Response to Xiao's 'Necessary and Sufficient Conditions of Unacceptable Solutions in LP Discriminant Analysis: Something is Amiss,'" *Decision Sciences*, 1994, G. J. Koehler.

"Deterministic Global Optimal FNN Training Algorithms," *Neural Networks*, 1994, Z. Tang and G. J. Koehler.

"A Proof of the Vose-Liepins Conjecture," *Annals of Mathematics and Artificial Intelligence*, 1994, G. J. Koehler.

"A Review of Machine Learning in Scheduling," *IEEE Transactions on Engineering Management*, 1994, H. Aytug, S. Bhattacharyya, G. J. Koehler and J. L. Snowdon.

"Genetic Learning of Dynamic Scheduling within Simulation Environment," *Computer and Operations Research*, 1994, H. Aytug, G. J. Koehler and J. L. Snowdon.

"An Investigation on the Conditions of Pruning an Induced Decision Tree," *European Journal of Operational Research*, 1994, H. Kim and G. J. Koehler.

"Developing Knowledge Structures: A Comparison of a Qualitative-Response Model and Two Machine Learning Algorithms," *Decision Support Systems*, 1993, J.V. Hansen, G. J. Koehler, W.F. Messier and J.F. Mutchler.

"The Accuracy of Concepts Learned from Induction," *Decision Support Systems*, 1993, Li-Hui Tsai and G. J. Koehler.

"Discriminant Functions Determined by Genetic Search," *Inform Journal on Computing*, 1991, G. J. Koehler.

"Improper Linear Discriminant Classifiers," *European Journal of Operational Research*, 1991, G. J. Koehler.

"Relationships Between Various Markovian Decision Problem Classes," *SIAM Journal on Control and Optimization*, 1990, G. J. Koehler.

"Considerations for Mathematical Programming Models in Discriminant Analysis," *Managerial and Decision Economics*, 1990, G. J. Koehler.

"Survey of Mathematical Programming Models for Discriminant Analysis," *Managerial and Decision Economics*, 1990, S.S. Erenguc and G. J. Koehler.

"Minimizing Misclassifications in Linear Discriminant Analysis," *Decision Science*, 1990, G. J. Koehler and S.S. Erenguc.

18 additional journal articles before 1990.

Editorial Boards:

Decision Support Systems; International Journal of Business; Journal of Information Technology and Management, International Journal of Computational Intelligence and Organizations, Information Systems and e-Business Management, IIE Transactions on Operations Engineering, Journal of Database Management, Enterprise Information Systems.