

Bibliography

- [AAD⁺96] S. Agarwal, R. Agrawal, P. M. Deshpande, A. Gupta, J. F. Naughton, R. Ramakrishnan, and S. Sarawagi. On the computation of multidimensional aggregates. In *Proc. 1996 Int. Conf. Very Large Data Bases (VLDB'96)*, pp. 506–521, Bombay, India, Sept. 1996.
- [AAP01] R. Agarwal, C. C. Aggarwal, and V. V. V. Prasad. A tree projection algorithm for generation of frequent itemsets. *J. Parallel and Distributed Computing*, 61:350–371, 2001.
- [AB79] B. Abraham and G. E. P. Box. Bayesian analysis of some outlier problems in time series. *Biometrika*, 66:229–248, 1979.
- [AB99] R. Albert and A.-L. Barabasi. Emergence of scaling in random networks. *Science*, 286:509–512, 1999.
- [ABA06] M. Agyemang, K. Barker, and R. Alhaji. A comprehensive survey of numeric and symbolic outlier mining techniques. *Intell. Data Anal.*, 10:521–538, 2006.
- [ABKS99] M. Ankerst, M. Breunig, H.-P. Kriegel, and J. Sander. OPTICS: Ordering points to identify the clustering structure. In *Proc. 1999 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'99)*, pp. 49–60, Philadelphia, PA, June 1999.
- [AD91] H. Almuallim and T. G. Dietterich. Learning with many irrelevant features. In *Proc. 1991 Nat. Conf. Artificial Intelligence (AAAI'91)*, pp. 547–552, Anaheim, CA, July 1991.
- [AEEK99] M. Ankerst, C. Elsen, M. Ester, and H.-P. Kriegel. Visual classification: An interactive approach to decision tree construction. In *Proc. 1999 Int. Conf. Knowledge Discovery and Data Mining (KDD'99)*, pp. 392–396, San Diego, CA, Aug. 1999.
- [AEMT00] K. M. Ahmed, N. M. El-Makky, and Y. Taha. A note on “beyond market basket: Generalizing association rules to correlations.” *SIGKDD Explorations*, 1:46–48, 2000.
- [AG60] F. J. Anscombe, and I. Guttman. Rejection of outliers. *Technometrics*, 2:123–147, 1960.
- [Aga06] D. Agarwal. Detecting anomalies in cross-classified streams: A Bayesian approach. *Knowl. Inf. Syst.*, 11:29–44, 2006.
- [AGAV09] E. Amigó, J. Gonzalo, J. Artilles, and F. Verdejo. A comparison of extrinsic clustering evaluation metrics based on formal constraints. *Information Retrieval*, 12(4):461–486, 2009.
- [Agg06] C. C. Aggarwal. *Data Streams: Models and Algorithms*. Kluwer Academic, 2006.
- [AGGR98] R. Agrawal, J. Gehrke, D. Gunopulos, and P. Raghavan. Automatic subspace clustering of high dimensional data for data mining applications. In *Proc. 1998 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'98)*, pp. 94–105, Seattle, WA, June 1998.
- [AGM04] F. N. Afrati, A. Gionis, and H. Mannila. Approximating a collection of frequent sets. In *Proc. 2004 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'04)*, pp. 12–19, Seattle, WA, Aug. 2004.

- [AGS97] R. Agrawal, A. Gupta, and S. Sarawagi. Modeling multidimensional databases. In *Proc. 1997 Int. Conf. Data Engineering (ICDE'97)*, pp. 232–243, Birmingham, England, Apr. 1997.
- [Aha92] D. Aha. Tolerating noisy, irrelevant, and novel attributes in instance-based learning algorithms. *Int. J. Man-Machine Studies*, 36:267–287, 1992.
- [AHS96] P. Arabie, L. J. Hubert, and G. De Soete. *Clustering and Classification*. World Scientific, 1996.
- [AHWY03] C. C. Aggarwal, J. Han, J. Wang, and P. S. Yu. A framework for clustering evolving data streams. In *Proc. 2003 Int. Conf. Very Large Data Bases (VLDB'03)*, pp. 81–92, Berlin, Germany, Sept. 2003.
- [AHWY04a] C. C. Aggarwal, J. Han, J. Wang, and P. S. Yu. A framework for projected clustering of high dimensional data streams. In *Proc. 2004 Int. Conf. Very Large Data Bases (VLDB'04)*, pp. 852–863, Toronto, Ontario, Canada, Aug. 2004.
- [AHWY04b] C. C. Aggarwal, J. Han, J. Wang, and P. S. Yu. On demand classification of data streams. In *Proc. 2004 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'04)*, pp. 503–508, Seattle, WA, Aug. 2004.
- [AIS93] R. Agrawal, T. Imielinski, and A. Swami. Mining association rules between sets of items in large databases. In *Proc. 1993 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'93)*, pp. 207–216, Washington, DC, May 1993.
- [AK93] T. Anand and G. Kahn. Opportunity explorer: Navigating large databases using knowledge discovery templates. In *Proc. AAAI-93 Workshop Knowledge Discovery in Databases*, pp. 45–51, Washington, DC, July 1993.
- [AL99] Y. Aumann and Y. Lindell. A statistical theory for quantitative association rules. In *Proc. 1999 Int. Conf. Knowledge Discovery and Data Mining (KDD'99)*, pp. 261–270, San Diego, CA, Aug. 1999.
- [All94] B. P. Allen. Case-based reasoning: Business applications. *Communications of the ACM*, 37:40–42, 1994.
- [Alp11] E. Alpaydin. *Introduction to Machine Learning* (2nd ed.). Cambridge, MA: MIT Press, 2011.
- [ALSS95] R. Agrawal, K.-I. Lin, H. S. Sawhney, and K. Shim. Fast similarity search in the presence of noise, scaling, and translation in time-series databases. In *Proc. 1995 Int. Conf. Very Large Data Bases (VLDB'95)*, pp. 490–501, Zurich, Switzerland, Sept. 1995.
- [AMS⁺96] R. Agrawal, H. Mannila, R. Srikant, H. Toivonen, and A. I. Verkamo. Fast discovery of association rules. In U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy (eds.), *Advances in Knowledge Discovery and Data Mining*, pp. 307–328. AAAI/MIT Press, 1996.
- [Aok98] P. M. Aoki. Generalizing “search” in generalized search trees. In *Proc. 1998 Int. Conf. Data Engineering (ICDE'98)*, pp. 380–389, Orlando, FL, Feb. 1998.
- [AP94] A. Aamodt and E. Plazas. Case-based reasoning: Foundational issues, methodological variations, and system approaches. *AI Communications*, 7:39–52, 1994.
- [AP05] F. Angiulli, and C. Pizzuti. Outlier mining in large high-dimensional data sets. *IEEE Trans. on Knowl. and Data Eng.*, 17:203–215, 2005.
- [APW⁺99] C. C. Aggarwal, C. Procopiuc, J. Wolf, P. S. Yu, and J.-S. Park. Fast algorithms for projected clustering. In *Proc. 1999 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'99)*, pp. 61–72, Philadelphia, PA, June 1999.

- [AS94a] R. Agrawal and R. Srikant. Fast algorithm for mining association rules in large databases. In *Research Report RJ 9839*, IBM Almaden Research Center, San Jose, CA, June 1994.
- [AS94b] R. Agrawal and R. Srikant. Fast algorithms for mining association rules. In *Proc. 1994 Int. Conf. Very Large Data Bases (VLDB'94)*, pp. 487–499, Santiago, Chile, Sept. 1994.
- [AS95] R. Agrawal and R. Srikant. Mining sequential patterns. In *Proc. 1995 Int. Conf. Data Engineering (ICDE'95)*, pp. 3–14, Taipei, Taiwan, Mar. 1995.
- [AS96] R. Agrawal and J. C. Shafer. Parallel mining of association rules: Design, implementation, and experience. *IEEE Trans. Knowledge and Data Engineering*, 8:962–969, 1996.
- [AS00] R. Agrawal and R. Srikant. Privacy-preserving data mining. In *Proc. 2000 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'00)*, pp. 439–450, Dallas, TX, May 2000.
- [ASS00] E. Allwein, R. Shapire, and Y. Singer. Reducing multiclass to binary: A unifying approach for margin classifiers. *Journal of Machine Learning Research*, 1:113–141, 2000.
- [AV07] D. Arthur and S. Vassilvitskii. K-means++: The advantages of careful seeding. In *Proc. 2007 ACM-SIAM Symp. on Discrete Algorithms (SODA'07)*, pp. 1027–1035, Tokyo, 2007.
- [Avn95] S. Avner. Discovery of comprehensible symbolic rules in a neural network. In *Proc. 1995 Int. Symp. Intelligence in Neural and Biological Systems*, pp. 64–67, Washington, DC, 1995.
- [AY99] C. C. Aggarwal and P. S. Yu. A new framework for itemset generation. In *Proc. 1998 ACM Symp. Principles of Database Systems (PODS'98)*, pp. 18–24, Seattle, WA, June 1999.
- [AY01] C. C. Aggarwal and P. S. Yu. Outlier detection for high dimensional data. In *Proc. 2001 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'01)*, pp. 37–46, Santa Barbara, CA, May 2001.
- [AY08] C. C. Aggarwal and P. S. Yu. *Privacy-Preserving Data Mining: Models and Algorithms*. New York: Springer, 2008.
- [BA97] L. A. Breslow and D. W. Aha. Simplifying decision trees: A survey. *Knowledge Engineering Rev.*, 12:1–40, 1997.
- [Bay98] R. J. Bayardo. Efficiently mining long patterns from databases. In *Proc. 1998 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'98)*, pp. 85–93, Seattle, WA, June 1998.
- [BB98] A. Bagga and B. Baldwin. Entity-based cross-document coreferencing using the vector space model. In *Proc. 1998 Annual Meeting of the Association for Computational Linguistics and Int. Conf. Computational Linguistics (COLING-ACL'98)*, Montreal, Quebec, Canada, Aug. 1998.
- [BB01] P. Baldi and S. Brunak. *Bioinformatics: The Machine Learning Approach* (2nd ed.). Cambridge, MA: MIT Press, 2001.
- [BB02] C. Borgelt and M. R. Berthold. Mining molecular fragments: Finding relevant substructures of molecules. In *Proc. 2002 Int. Conf. Data Mining (ICDM'02)*, pp. 211–218, Maebashi, Japan, Dec. 2002.
- [BBD⁺02] B. Babcock, S. Babu, M. Datar, R. Motwani, and J. Widom. Models and issues in data stream systems. In *Proc. 2002 ACM Symp. Principles of Database Systems (PODS'02)*, pp. 1–16, Madison, WI, June 2002.
- [BC83] R. J. Beckman and R. D. Cook. Outlier. . . s. *Technometrics*, 25:119–149, 1983.

- [BCC10] S. Buettcher, C. L. A. Clarke, and G. V. Cormack. *Information Retrieval: Implementing and Evaluating Search Engines*. Cambridge, MA: MIT Press, 2010.
- [BCG01] D. Burdick, M. Calimlim, and J. Gehrke. MAFIA: A maximal frequent itemset algorithm for transactional databases. In *Proc. 2001 Int. Conf. Data Engineering (ICDE'01)*, pp. 443–452, Heidelberg, Germany, Apr. 2001.
- [BCP93] D. E. Brown, V. Corruble, and C. L. Pittard. A comparison of decision tree classifiers with backpropagation neural networks for multimodal classification problems. *Pattern Recognition*, 26:953–961, 1993.
- [BD01] P. J. Bickel and K. A. Doksum. *Mathematical Statistics: Basic Ideas and Selected Topics*, Vol. 1. Prentice-Hall, 2001.
- [BD02] P. J. Brockwell and R. A. Davis. *Introduction to Time Series and Forecasting* (2nd ed.). New York: Springer, 2002.
- [BDF⁺97] D. Barbará, W. DuMouchel, C. Faloutsos, P. J. Haas, J. H. Hellerstein, Y. Ioannidis, H. V. Jagadish, T. Johnson, R. Ng, V. Poosala, K. A. Ross, and K. C. Servcik. The New Jersey data reduction report. *Bull. Technical Committee on Data Engineering*, 20:3–45, Dec. 1997.
- [BDG96] A. Bruce, D. Donoho, and H.-Y. Gao. Wavelet analysis. *IEEE Spectrum*, 33:26–35, Oct. 1996.
- [BDJ⁺05] D. Burdick, P. Deshpande, T. S. Jayram, R. Ramakrishnan, and S. Vaithyanathan. OLAP over uncertain and imprecise data. In *Proc. 2005 Int. Conf. Very Large Data Bases (VLDB'05)*, pp. 970–981, Trondheim, Norway, Aug. 2005.
- [Ben08] S. Benninga. *Financial Modeling* (3rd ed.). Cambridge, MA: MIT Press, 2008.
- [Ber81] J. Bertin. *Graphics and Graphic Information Processing*. Walter de Gruyter, Berlin, 1981.
- [Ber03] M. W. Berry. *Survey of Text Mining: Clustering, Classification, and Retrieval*. New York: Springer, 2003.
- [Bez81] J. C. Bezdek. *Pattern Recognition with Fuzzy Objective Function Algorithms*. Plenum Press, 1981.
- [BFOS84] L. Breiman, J. Friedman, R. Olshen, and C. Stone. *Classification and Regression Trees*. Wadsworth International Group, 1984.
- [BFR98] P. Bradley, U. Fayyad, and C. Reina. Scaling clustering algorithms to large databases. In *Proc. 1998 Int. Conf. Knowledge Discovery and Data Mining (KDD'98)*, pp. 9–15, New York, Aug. 1998.
- [BG04] I. Bhattacharya and L. Getoor. Iterative record linkage for cleaning and integration. In *Proc. SIGMOD 2004 Workshop on Research Issues on Data Mining and Knowledge Discovery (DMKD'04)*, pp. 11–18, Paris, France, June 2004.
- [B-G05] I. Ben-Gal. Outlier detection. In O. Maimon and L. Rockach (eds.), *Data Mining and Knowledge Discovery Handbook: A Complete Guide for Practitioners and Researchers*. Kluwer Academic, 2005.
- [BGKW03] C. Bucila, J. Gehrke, D. Kifer, and W. White. DualMiner: A dual-pruning algorithm for itemsets with constraints. *Data Mining and Knowledge Discovery*, 7:241–272, 2003.
- [BGMP03] F. Bonchi, F. Giannotti, A. Mazzanti, and D. Pedreschi. ExAnte: Anticipated data reduction in constrained pattern mining. In *Proc. 7th European Conf. Principles and Practice of Knowledge Discovery in Databases (PKDD'03)*, Vol. 2838/2003, pp. 59–70, Cavtat-Dubrovnik, Croatia, Sept. 2003.

- [BGRS99] K. S. Beyer, J. Goldstein, R. Ramakrishnan, and U. Shaft. When is “nearest neighbor” meaningful? In *Proc. 1999 Int. Conf. Database Theory (ICDT’99)*, pp. 217–235, Jerusalem, Israel, Jan. 1999.
- [BGV92] B. Boser, I. Guyon, and V. N. Vapnik. A training algorithm for optimal margin classifiers. In *Proc. Fifth Annual Workshop on Computational Learning Theory*, pp. 144–152, ACM Press, San Mateo, CA, 1992.
- [Bis95] C. M. Bishop. *Neural Networks for Pattern Recognition*. Oxford University Press, 1995.
- [Bis06] C. M. Bishop. *Pattern Recognition and Machine Learning*. New York: Springer, 2006.
- [BJR08] G. E. P. Box, G. M. Jenkins, and G. C. Reinsel. *Time Series Analysis: Forecasting and Control* (4th ed.). Prentice-Hall, 2008.
- [BKNS00] M. M. Breunig, H.-P. Kriegel, R. Ng, and J. Sander. LOF: Identifying density-based local outliers. In *Proc. 2000 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD’00)*, pp. 93–104, Dallas, TX, May 2000.
- [BL99] M. J. A. Berry and G. Linoff. *Mastering Data Mining: The Art and Science of Customer Relationship Management*. John Wiley & Sons, 1999.
- [BL04] M. J. A. Berry and G. S. Linoff. *Data Mining Techniques: For Marketing, Sales, and Customer Relationship Management*. John Wiley & Sons, 2004.
- [BL09] D. Blei and J. Lafferty. Topic models. In A. Srivastava and M. Sahami (eds.), *Text Mining: Theory and Applications*, Taylor and Francis, 2009.
- [BLC⁺03] D. Barbará, Y. Li, J. Couto, J.-L. Lin, and S. Jajodia. Bootstrapping a data mining intrusion detection system. In *Proc. 2003 ACM Symp. on Applied Computing (SAC’03)*, Melbourne, FL, March 2003.
- [BM98] A. Blum and T. Mitchell. Combining labeled and unlabeled data with co-training. In *Proc. 11th Conf. Computational Learning Theory (COLT’98)*, pp. 92–100, Madison, WI, 1998.
- [BMAD06] Z. A. Bakar, R. Mohemad, A. Ahmad, and M. M. Deris. A comparative study for outlier detection techniques in data mining. In *Proc. 2006 IEEE Conf. Cybernetics and Intelligent Systems*, pp. 1–6, Bangkok, Thailand, 2006.
- [BMS97] S. Brin, R. Motwani, and C. Silverstein. Beyond market basket: Generalizing association rules to correlations. In *Proc. 1997 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD’97)*, pp. 265–276, Tucson, AZ, May 1997.
- [BMUT97] S. Brin, R. Motwani, J. D. Ullman, and S. Tsur. Dynamic itemset counting and implication rules for market basket analysis. In *Proc. 1997 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD’97)*, pp. 255–264, Tucson, AZ, May 1997.
- [BN92] W. L. Buntine and T. Niblett. A further comparison of splitting rules for decision-tree induction. *Machine Learning*, 8:75–85, 1992.
- [BO04] A. Baxevanis and B. F. F. Ouellette. *Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins* (3rd ed.). John Wiley & Sons, 2004.
- [BP92] J. C. Bezdek and S. K. Pal. *Fuzzy Models for Pattern Recognition: Methods That Search for Structures in Data*. IEEE Press, 1992.
- [BP98] S. Brin and L. Page. The anatomy of a large-scale hypertextual web search engine. In *Proc. 7th Int. World Wide Web Conf. (WWW’98)*, pp. 107–117, Brisbane, Australia, Apr. 1998.

- [BPT97] E. Baralis, S. Paraboschi, and E. Teniente. Materialized view selection in a multidimensional database. In *Proc. 1997 Int. Conf. Very Large Data Bases (VLDB'97)*, pp. 98–12, Athens, Greece, Aug. 1997.
- [BPW88] E. R. Bareiss, B. W. Porter, and C. C. Weir. Protos: An exemplar-based learning apprentice. *Int. J. Man-Machine Studies*, 29:549–561, 1988.
- [BR99] K. Beyer and R. Ramakrishnan. Bottom-up computation of sparse and iceberg cubes. In *Proc. 1999 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'99)*, pp. 359–370, Philadelphia, PA, June 1999.
- [Bre96] L. Breiman. Bagging predictors. *Machine Learning*, 24:123–140, 1996.
- [Bre01] L. Breiman. Random forests. *Machine Learning*, 45:5–32, 2001.
- [BS97] D. Barbará and M. Sullivan. Quasi-cubes: Exploiting approximation in multidimensional databases. *SIGMOD Record*, 26:12–17, 1997.
- [BS03] S. D. Bay and M. Schwabacher. Mining distance-based outliers in near linear time with randomization and a simple pruning rule. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, pp. 29–38, Washington, DC, Aug. 2003.
- [BST99] A. Berson, S. J. Smith, and K. Thearling. *Building Data Mining Applications for CRM*. McGraw-Hill, 1999.
- [BT99] D. P. Ballou and G. K. Tayi. Enhancing data quality in data warehouse environments. *Communications of the ACM*, 42:73–78, 1999.
- [BU95] C. E. Brodley and P. E. Utgoff. Multivariate decision trees. *Machine Learning*, 19:45–77, 1995.
- [Bun94] W. L. Buntine. Operations for learning with graphical models. *J. Artificial Intelligence Research*, 2:159–225, 1994.
- [Bur98] C. J. C. Burges. A tutorial on support vector machines for pattern recognition. *Data Mining and Knowledge Discovery*, 2:121–168, 1998.
- [BW00] D. Barbará and X. Wu. Using loglinear models to compress datacubes. In *Proc. 1st Int. Conf. Web-Age Information Management (WAIM'00)*, pp. 311–322, Shanghai, China, 2000.
- [BW01] S. Babu and J. Widom. Continuous queries over data streams. *SIGMOD Record*, 30:109–120, 2001.
- [BYRN11] R. A. Baeza-Yates and B. A. Ribeiro-Neto. *Modern Information Retrieval* (2nd ed.). Boston: Addison-Wesley, 2011.
- [Cat91] J. Catlett. *Megainduction: Machine Learning on Very large Databases*. Ph.D. Thesis, University of Sydney, 1991.
- [CBK09] V. Chandola, A. Banerjee, and V. Kumar. Anomaly detection: A survey. *ACM Computing Surveys*, 41:1–58, 2009.
- [CC00] Y. Cheng and G. Church. Biclustering of expression data. In *Proc. 2000 Int. Conf. Intelligent Systems for Molecular Biology (ISMB'00)*, pp. 93–103, La Jolla, CA, Aug. 2000.
- [CCH91] Y. Cai, N. Cercone, and J. Han. Attribute-oriented induction in relational databases. In G. Piatetsky-Shapiro and W. J. Frawley (eds.), *Knowledge Discovery in Databases*, pp. 213–228. AAAI/MIT Press, 1991.
- [CCLR05] B.-C. Chen, L. Chen, Y. Lin, and R. Ramakrishnan. Prediction cubes. In *Proc. 2005 Int. Conf. Very Large Data Bases (VLDB'05)*, pp. 982–993, Trondheim, Norway, Aug. 2005.

- [CCS93] E. F. Codd, S. B. Codd, and C. T. Salley. Beyond decision support. *Computer World*, 27(30):5–12, July 1993.
- [CD97] S. Chaudhuri and U. Dayal. An overview of data warehousing and OLAP technology. *SIGMOD Record*, 26:65–74, 1997.
- [CDH⁺02] Y. Chen, G. Dong, J. Han, B. W. Wah, and J. Wang. Multidimensional regression analysis of time-series data streams. In *Proc. 2002 Int. Conf. Very Large Data Bases (VLDB'02)*, pp. 323–334, Hong Kong, China, Aug. 2002.
- [CDH⁺06] Y. Chen, G. Dong, J. Han, J. Pei, B. W. Wah, and J. Wang. Regression cubes with lossless compression and aggregation. *IEEE Trans. Knowledge and Data Engineering*, 18:1585–1599, 2006.
- [CDI98] S. Chakrabarti, B. E. Dom, and P. Indyk. Enhanced hypertext classification using hyperlinks. In *Proc. 1998 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'98)*, pp. 307–318, Seattle, WA, June 1998.
- [CDK⁺99] S. Chakrabarti, B. E. Dom, S. R. Kumar, P. Raghavan, S. Rajagopalan, A. Tomkins, D. Gibson, and J. M. Kleinberg. Mining the web's link structure. *COMPUTER*, 32:60–67, 1999.
- [CGC94] A. Chaturvedi, P. Green, and J. Carroll. k -means, k -medians and k -modes: Special cases of partitioning multiway data. In *The Classification Society of North America (CSNA) Meeting Presentation*, Houston, TX, 1994.
- [CGC01] A. Chaturvedi, P. Green, and J. Carroll. k -modes clustering. *J. Classification*, 18:35–55, 2001.
- [CH67] T. Cover and P. Hart. Nearest neighbor pattern classification. *IEEE Trans. Information Theory*, 13:21–27, 1967.
- [CH92] G. Cooper and E. Herskovits. A Bayesian method for the induction of probabilistic networks from data. *Machine Learning*, 9:309–347, 1992.
- [CH07] D. J. Cook and L. B. Holder. *Mining Graph Data*. John Wiley & Sons, 2007.
- [Cha03a] S. Chakrabarti. *Mining the Web: Discovering Knowledge from Hypertext Data*. Morgan Kaufmann, 2003.
- [Cha03b] C. Chatfield. *The Analysis of Time Series: An Introduction* (6th ed.). Chapman & Hall, 2003.
- [CHN⁺96] D. W. Cheung, J. Han, V. Ng, A. Fu, and Y. Fu. A fast distributed algorithm for mining association rules. In *Proc. 1996 Int. Conf. Parallel and Distributed Information Systems*, pp. 31–44, Miami Beach, FL, Dec. 1996.
- [CHNW96] D. W. Cheung, J. Han, V. Ng, and C. Y. Wong. Maintenance of discovered association rules in large databases: An incremental updating technique. In *Proc. 1996 Int. Conf. Data Engineering (ICDE'96)*, pp. 106–114, New Orleans, LA, Feb. 1996.
- [CHY96] M. S. Chen, J. Han, and P. S. Yu. Data mining: An overview from a database perspective. *IEEE Trans. Knowledge and Data Engineering*, 8:866–883, 1996.
- [CK98] M. Carey and D. Kossman. Reducing the braking distance of an SQL query engine. In *Proc. 1998 Int. Conf. Very Large Data Bases (VLDB'98)*, pp. 158–169, New York, Aug. 1998.
- [CKT06] D. Chakrabarti, R. Kumar, and A. Tomkins. Evolutionary clustering. In *Proc. 2006 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'06)*, pp. 554–560, Philadelphia, PA, Aug. 2006.
- [Cle93] W. Cleveland. *Visualizing Data*. Hobart Press, 1993.

- [CSZ06] O. Chapelle, B. Schölkopf, and A. Zien. *Semi-supervised Learning*. Cambridge, MA: MIT Press, 2006.
- [CM94] S. P. Curram and J. Mingers. Neural networks, decision tree induction and discriminant analysis: An empirical comparison. *J. Operational Research Society*, 45:440–450, 1994.
- [CMC05] H. Cao, N. Mamoulis, and D. W. Cheung. Mining frequent spatio-temporal sequential patterns. In *Proc. 2005 Int. Conf. Data Mining (ICDM'05)*, pp. 82–89, Houston, TX, Nov. 2005.
- [CMS09] B. Croft, D. Metzler, and T. Strohman. *Search Engines: Information Retrieval in Practice*. Boston: Addison-Wesley, 2009.
- [CN89] P. Clark and T. Niblett. The CN2 induction algorithm. *Machine Learning*, 3:261–283, 1989.
- [Coh95] W. Cohen. Fast effective rule induction. In *Proc. 1995 Int. Conf. Machine Learning (ICML'95)*, pp. 115–123, Tahoe City, CA, July 1995.
- [Coo90] G. F. Cooper. The computational complexity of probabilistic inference using Bayesian belief networks. *Artificial Intelligence*, 42:393–405, 1990.
- [CPS98] K. Cios, W. Pedrycz, and R. Swiniarski. *Data Mining Methods for Knowledge Discovery*. Kluwer Academic, 1998.
- [CR95] Y. Chauvin and D. Rumelhart. *Backpropagation: Theory, Architectures, and Applications*. Lawrence Erlbaum, 1995.
- [Cra89] S. L. Crawford. Extensions to the CART algorithm. *Int. J. Man-Machine Studies*, 31:197–217, Aug. 1989.
- [CRST06] B.-C. Chen, R. Ramakrishnan, J. W. Shavlik, and P. Tamma. Bellwether analysis: Predicting global aggregates from local regions. In *Proc. 2006 Int. Conf. Very Large Data Bases (VLDB'06)*, pp. 655–666, Seoul, Korea, Sept. 2006.
- [CS93a] P. K. Chan and S. J. Stolfo. Experiments on multistrategy learning by metalearning. In *Proc. 2nd. Int. Conf. Information and Knowledge Management (CIKM'93)*, pp. 314–323, Washington, DC, Nov. 1993.
- [CS93b] P. K. Chan and S. J. Stolfo. Toward multi-strategy parallel & distributed learning in sequence analysis. In *Proc. 1st Int. Conf. Intelligent Systems for Molecular Biology (ISMB'93)*, pp. 65–73, Bethesda, MD, July 1993.
- [CS96] M. W. Craven and J. W. Shavlik. Extracting tree-structured representations of trained networks. In D. Touretzky, M. Mozer, and M. Hasselmo (eds.), *Advances in Neural Information Processing Systems*. Cambridge, MA: MIT Press, 1996.
- [CS97] M. W. Craven and J. W. Shavlik. Using neural networks in data mining. *Future Generation Computer Systems*, 13:211–229, 1997.
- [CS-T00] N. Cristianini and J. Shawe-Taylor. *An Introduction to Support Vector Machines and Other Kernel-Based Learning Methods*. Cambridge University Press, 2000.
- [CSZ⁺07] Y. Chi, X. Song, D. Zhou, K. Hino, and B. L. Tseng. Evolutionary spectral clustering by incorporating temporal smoothness. In *Proc. 2007 ACM SIGKDD Intl. Conf. Knowledge Discovery and Data Mining (KDD'07)*, pp. 153–162, San Jose, CA, Aug. 2007.
- [CTTX05] G. Cong, K.-Lee Tan, A. K. H. Tung, and X. Xu. Mining top-*k* covering rule groups for gene expression data. In *Proc. 2005 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'05)*, pp. 670–681, Baltimore, MD, June 2005.

- [CWL⁺08] G. Cong, L. Wang, C.-Y. Lin, Y.-I. Song, and Y. Sun. Finding question-answer pairs from online forums. In *Proc. 2008 Int. ACM SIGIR Conf. Research and Development in Information Retrieval (SIGIR'08)*, pp. 467–474, Singapore, July 2008.
- [CYHH07] H. Cheng, X. Yan, J. Han, and C.-W. Hsu. Discriminative frequent pattern analysis for effective classification. In *Proc. 2007 Int. Conf. Data Engineering (ICDE'07)*, pp. 716–725, Istanbul, Turkey, Apr. 2007.
- [CYHY08] H. Cheng, X. Yan, J. Han, and P. S. Yu. Direct discriminative pattern mining for effective classification. In *Proc. 2008 Int. Conf. Data Engineering (ICDE'08)*, pp. 169–178, Cancun, Mexico, Apr. 2008.
- [CYZ⁺08] C. Chen, X. Yan, F. Zhu, J. Han, and P. S. Yu. Graph OLAP: Towards online analytical processing on graphs. In *Proc. 2008 Int. Conf. Data Mining (ICDM'08)*, pp. 103–112, Pisa, Italy, Dec. 2008.
- [Dar10] A. Darwiche. Bayesian networks. *Communications of the ACM*, 53:80–90, 2010.
- [Das91] B. V. Dasarathy. *Nearest Neighbor (NN) Norms: NN Pattern Classification Techniques*. IEEE Computer Society Press, 1991.
- [Dau92] I. Daubechies. *Ten Lectures on Wavelets*. Capital City Press, 1992.
- [DB95] T. G. Dietterich and G. Bakiri. Solving multiclass learning problems via error-correcting output codes. *J. Artificial Intelligence Research*, 2:263–286, 1995.
- [DBK⁺97] H. Drucker, C. J. C. Burges, L. Kaufman, A. Smola, and V. N. Vapnik. Support vector regression machines. In M. Mozer, M. Jordan, and T. Petsche (eds.), *Advances in Neural Information Processing Systems 9*, pp. 155–161. Cambridge, MA: MIT Press, 1997.
- [DE84] W. H. E. Day and H. Edelsbrunner. Efficient algorithms for agglomerative hierarchical clustering methods. *J. Classification*, 1:7–24, 1984.
- [De01] S. Dzeroski and N. Lavrac (eds.). *Relational Data Mining*. New York: Springer, 2001.
- [DEKM98] R. Durbin, S. Eddy, A. Krogh, and G. Mitchison. *Biological Sequence Analysis: Probability Models of Proteins and Nucleic Acids*. Cambridge University Press, 1998.
- [Dev95] J. L. Devore. *Probability and Statistics for Engineering and the Sciences* (4th ed.). Duxbury Press, 1995.
- [Dev03] J. L. Devore. *Probability and Statistics for Engineering and the Sciences* (6th ed.). Duxbury Press, 2003.
- [DH73] W. E. Donath and A. J. Hoffman. Lower bounds for the partitioning of graphs. *IBM J. Research and Development*, 17:420–425, 1973.
- [DH00] P. Domingos and G. Hulten. Mining high-speed data streams. In *Proc. 2000 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'00)*, pp. 71–80, Boston, MA, Aug. 2000.
- [DHL⁺01] G. Dong, J. Han, J. Lam, J. Pei, and K. Wang. Mining multi-dimensional constrained gradients in data cubes. In *Proc. 2001 Int. Conf. Very Large Data Bases (VLDB'01)*, pp. 321–330, Rome, Italy, Sept. 2001.
- [DHL⁺04] G. Dong, J. Han, J. Lam, J. Pei, K. Wang, and W. Zou. Mining constrained gradients in multi-dimensional databases. *IEEE Trans. Knowledge and Data Engineering*, 16:922–938, 2004.
- [DHS01] R. O. Duda, P. E. Hart, and D. G. Stork. *Pattern Classification* (2nd ed.). John Wiley & Sons, 2001.

- [DJ03] T. Dasu and T. Johnson. *Exploratory Data Mining and Data Cleaning*. John Wiley & Sons, 2003.
- [DJMS02] T. Dasu, T. Johnson, S. Muthukrishnan, and V. Shkapenyuk. Mining database structure; or how to build a data quality browser. In *Proc. 2002 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'02)*, pp. 240–251, Madison, WI, June 2002.
- [DL97] M. Dash and H. Liu. Feature selection methods for classification. *Intelligent Data Analysis*, 1:131–156, 1997.
- [DL99] G. Dong and J. Li. Efficient mining of emerging patterns: Discovering trends and differences. In *Proc. 1999 Int. Conf. Knowledge Discovery and Data Mining (KDD'99)*, pp. 43–52, San Diego, CA, Aug. 1999.
- [DLR77] A. P. Dempster, N. M. Laird, and D. B. Rubin. Maximum likelihood from incomplete data via the EM algorithm. *J. Royal Statistical Society, Series B*, 39:1–38, 1977.
- [DLY97] M. Dash, H. Liu, and J. Yao. Dimensionality reduction of unsupervised data. In *Proc. 1997 IEEE Int. Conf. Tools with AI (ICTAI'97)*, pp. 532–539, Newport Beach, CA, IEEE Computer Society, 1997.
- [DM02] D. Dasgupta and N. S. Majumdar. Anomaly detection in multidimensional data using negative selection algorithm. In *Proc. 2002 Congress on Evolutionary Computation (CEC'02)*, Chapter 12, pp. 1039–1044, Washington, DC, 2002.
- [DNR⁺97] P. Deshpande, J. Naughton, K. Ramasamy, A. Shukla, K. Tufte, and Y. Zhao. Cubing algorithms, storage estimation, and storage and processing alternatives for OLAP. *Bull. Technical Committee on Data Engineering*, 20:3–11, 1997.
- [Dob90] A. J. Dobson. *An Introduction to Generalized Linear Models*. Chapman & Hall, 1990.
- [Dob01] A. J. Dobson. *An Introduction to Generalized Linear Models* (2nd ed.). Chapman & Hall, 2001.
- [Dom94] P. Domingos. The RISE system: Conquering without separating. In *Proc. 1994 IEEE Int. Conf. Tools with Artificial Intelligence (TAI'94)*, pp. 704–707, New Orleans, LA, 1994.
- [Dom99] P. Domingos. The role of Occam's razor in knowledge discovery. *Data Mining and Knowledge Discovery*, 3:409–425, 1999.
- [DP96] P. Domingos and M. Pazzani. Beyond independence: Conditions for the optimality of the simple Bayesian classifier. In *Proc. 1996 Int. Conf. Machine Learning (ML'96)*, pp. 105–112, Bari, Italy, July 1996.
- [DP97] J. Devore and R. Peck. *Statistics: The Exploration and Analysis of Data*. Duxbury Press, 1997.
- [DP07] G. Dong and J. Pei. *Sequence Data Mining*. New York: Springer, 2007.
- [DR99] D. Donjerkovic and R. Ramakrishnan. Probabilistic optimization of top N queries. In *Proc. 1999 Int. Conf. Very Large Data Bases (VLDB'99)*, pp. 411–422, Edinburgh, UK, Sept. 1999.
- [DR05] I. Davidson and S. S. Ravi. Clustering with constraints: Feasibility issues and the k -means algorithm. In *Proc. 2005 SIAM Int. Conf. Data Mining (SDM'05)*, Newport Beach, CA, Apr. 2005.
- [DT93] V. Dhar and A. Tuzhilin. Abstract-driven pattern discovery in databases. *IEEE Trans. Knowledge and Data Engineering*, 5:926–938, 1993.

- [Dun03] M. Dunham. *Data Mining: Introductory and Advanced Topics*. Prentice-Hall, 2003.
- [DWB06] I. Davidson, K. L. Wagstaff, and S. Basu. Measuring constraint-set utility for partitioned clustering algorithms. In *Proc. 10th European Conf. Principles and Practice of Knowledge Discovery in Databases (PKDD'06)*, pp. 115–126, Berlin, Germany, Sept. 2006.
- [Dwo06] C. Dwork. Differential privacy. In *Proc. 2006 Int. Col. Automata, Languages and Programming (ICALP)*, pp. 1–12, Venice, Italy, July 2006.
- [DYXY07] W. Dai, Q. Yang, G. Xue, and Y. Yu. Boosting for transfer learning. In *Proc. 24th Intl. Conf. Machine Learning*, pp. 193–200, Corvallis, OR, June 2007.
- [Ega75] J. P. Egan. *Signal Detection Theory and ROC Analysis*. Academic Press, 1975.
- [EK10] D. Easley and J. Kleinberg. *Networks, Crowds, and Markets: Reasoning about a Highly Connected World*. Cambridge University Press, 2010.
- [Esk00] E. Eskin. Anomaly detection over noisy data using learned probability distributions. In *Proc. 17th Int. Conf. Machine Learning (ICML'00)*, Stanford, CA, 2000.
- [EKSX96] M. Ester, H.-P. Kriegel, J. Sander, and X. Xu. A density-based algorithm for discovering clusters in large spatial databases. In *Proc. 1996 Int. Conf. Knowledge Discovery and Data Mining (KDD'96)*, pp. 226–231, Portland, OR, Aug. 1996.
- [EKX95] M. Ester, H.-P. Kriegel, and X. Xu. Knowledge discovery in large spatial databases: Focusing techniques for efficient class identification. In *Proc. 1995 Int. Symp. Large Spatial Databases (SSD'95)*, pp. 67–82, Portland, ME, Aug. 1995.
- [Elk97] C. Elkan. Boosting and naïve Bayesian learning. In *Technical Report CS97-557*, Dept. Computer Science and Engineering, University of California at San Diego, Sept. 1997.
- [Elk01] C. Elkan. The foundations of cost-sensitive learning. In *Proc. 17th Intl. Joint Conf. Artificial Intelligence (IJCAI'01)*, pp. 973–978, Seattle, WA, 2001.
- [EN10] R. Elmasri and S. B. Navathe. *Fundamentals of Database Systems* (6th ed.). Boston: Addison-Wesley, 2010.
- [Eng99] L. English. *Improving Data Warehouse and Business Information Quality: Methods for Reducing Costs and Increasing Profits*. John Wiley & Sons, 1999.
- [ESAG02] A. Evfimievski, R. Srikant, R. Agrawal, and J. Gehrke. Privacy preserving mining of association rules. In *Proc. 2002 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'02)*, pp. 217–228, Edmonton, Alberta, Canada, July 2002.
- [ET93] B. Efron and R. Tibshirani. *An Introduction to the Bootstrap*. Chapman & Hall, 1993.
- [FB74] R. A. Finkel and J. L. Bentley. Quad-trees: A data structure for retrieval on composite keys. *ACTA Informatica*, 4:1–9, 1974.
- [FB08] J. Friedman and E. P. Bogdan. Predictive learning via rule ensembles. *Ann. Applied Statistics*, 2:916–954, 2008.
- [FBF77] J. H. Friedman, J. L. Bentley, and R. A. Finkel. An algorithm for finding best matches in logarithmic expected time. *ACM Transactions on Math Software*, 3:209–226, 1977.
- [FFF99] M. Faloutsos, P. Faloutsos, and C. Faloutsos. On power-law relationships of the internet topology. In *Proc. ACM SIGCOMM'99 Conf. Applications, Technologies, Architectures, and Protocols for Computer Communication*, pp. 251–262, Cambridge, MA, Aug. 1999.
- [FG02] M. Fishelson and D. Geiger. Exact genetic linkage computations for general pedigrees. *Disinformation*, 18:189–198, 2002.

- [FGK⁺05] R. Fagin, R. V. Guha, R. Kumar, J. Novak, D. Sivakumar, and A. Tomkins. Multi-structural databases. In *Proc. 2005 ACM SIGMOD-SIGACT-SIGART Symp. Principles of Database Systems (PODS'05)*, pp. 184–195, Baltimore, MD, June 2005.
- [FGW01] U. Fayyad, G. Grinstein, and A. Wierse. *Information Visualization in Data Mining and Knowledge Discovery*. Morgan Kaufmann, 2001.
- [FH51] E. Fix and J. L. Hodges Jr. Discriminatory analysis, non-parametric discrimination: Consistency properties. In *Technical Report 21-49-004(4)*, USAF School of Aviation Medicine, Randolph Field, Texas, 1951.
- [FH87] K. Fukunaga and D. Hummels. Bayes error estimation using Parzen and k -nn procedure. *IEEE Trans. Pattern Analysis and Machine Learning*, 9:634–643, 1987.
- [FH95] Y. Fu and J. Han. Meta-rule-guided mining of association rules in relational databases. In *Proc. 1995 Int. Workshop Integration of Knowledge Discovery with Deductive and Object-Oriented Databases (KDOOD'95)*, pp. 39–46, Singapore, Dec. 1995.
- [FI90] U. M. Fayyad and K. B. Irani. What should be minimized in a decision tree? In *Proc. 1990 Nat. Conf. Artificial Intelligence (AAAI'90)*, pp. 749–754, Boston, MA, 1990.
- [FI92] U. M. Fayyad and K. B. Irani. The attribute selection problem in decision tree generation. In *Proc. 1992 Nat. Conf. Artificial Intelligence (AAAI'92)*, pp. 104–110, San Jose, CA, 1992.
- [FI93] U. Fayyad and K. Irani. Multi-interval discretization of continuous-valued attributes for classification learning. In *Proc. 1993 Int. Joint Conf. Artificial Intelligence (IJCAI'93)*, pp. 1022–1029, Chambery, France, 1993.
- [Fie73] M. Fiedler. Algebraic connectivity of graphs. *Czechoslovak Mathematical J.*, 23:298–305, 1973.
- [FL90] S. Fahlman and C. Lebiere. The cascade-correlation learning algorithm. In *Technical Report CMU-CS-90-100*, Computer Sciences Department, Carnegie Mellon University, 1990.
- [FL95] C. Faloutsos and K.-I. Lin. FastMap: A fast algorithm for indexing, data-mining and visualization of traditional and multimedia datasets. In *Proc. 1995 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'95)*, pp. 163–174, San Jose, CA, May 1995.
- [Fle87] R. Fletcher. *Practical Methods of Optimization*. John Wiley & Sons, 1987.
- [FMMT96] T. Fukuda, Y. Morimoto, S. Morishita, and T. Tokuyama. Data mining using two-dimensional optimized association rules: Scheme, algorithms, and visualization. In *Proc. 1996 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'96)*, pp. 13–23, Montreal, Quebec, Canada, June 1996.
- [FP05] J. Friedman and B. E. Popescu. Predictive learning via rule ensembles. In *Technical Report*, Department of Statistics, Stanford University, 2005.
- [FPP07] D. Freedman, R. Pisani, and R. Purves. *Statistics* (4th ed.). W. W. Norton & Co., 2007.
- [FPSS+96] U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy (eds.). *Advances in Knowledge Discovery and Data Mining*. AAAI/MIT Press, 1996.
- [FP97] T. Fawcett and F. Provost. Adaptive fraud detection. *Data Mining and Knowledge Discovery*, 1:291–316, 1997.
- [FR02] C. Fraley and A. E. Raftery. Model-based clustering, discriminant analysis, and density estimation. *J. American Statistical Association*, 97:611–631, 2002.

- [Fri77] J. H. Friedman. A recursive partitioning decision rule for nonparametric classifiers. *IEEE Trans. Computer*, 26:404–408, 1977.
- [Fri01] J. H. Friedman. Greedy function approximation: A gradient boosting machine. *Ann. Statistics*, 29:1189–1232, 2001.
- [Fri03] N. Friedman. Pcluster: Probabilistic agglomerative clustering of gene expression profiles. In *Technical Report 2003-80*, Hebrew University, 2003.
- [FRM94] C. Faloutsos, M. Ranganathan, and Y. Manolopoulos. Fast subsequence matching in time-series databases. In *Proc. 1994 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'94)*, pp. 419–429, Minneapolis, MN, May 1994.
- [FS93] U. Fayyad and P. Smyth. Image database exploration: Progress and challenges. In *Proc. AAAI'93 Workshop Knowledge Discovery in Databases (KDD'93)*, pp. 14–27, Washington, DC, July 1993.
- [FS97] Y. Freund and R. E. Schapire. A decision-theoretic generalization of on-line learning and an application to boosting. *J. Computer and System Sciences*, 55:119–139, 1997.
- [FS06] R. Feldman and J. Sanger. *The Text Mining Handbook: Advanced Approaches in Analyzing Unstructured Data*. Cambridge University Press, 2006.
- [FSGM+98] M. Fang, N. Shivakumar, H. Garcia-Molina, R. Motwani, and J. D. Ullman. Computing iceberg queries efficiently. In *Proc. 1998 Int. Conf. Very Large Data Bases (VLDB'98)*, pp. 299–310, New York, NY, Aug. 1998.
- [FW94] J. Furnkranz and G. Widmer. Incremental reduced error pruning. In *Proc. 1994 Int. Conf. Machine Learning (ICML'94)*, pp. 70–77, New Brunswick, NJ, 1994.
- [FWFY10] B. C. M. Fung, K. Wang, A. W.-C. Fu, and P. S. Yu. *Introduction to Privacy-Preserving Data Publishing: Concepts and Techniques*. Chapman & Hall/CRC, 2010.
- [FYM05] R. Fujimaki, T. Yairi, and K. Machida. An approach to spacecraft anomaly detection problem using kernel feature space. In *Proc. 2005 Int. Workshop Link Discovery (LinkKDD'05)*, pp. 401–410, Chicago, IL, 2005.
- [Gal93] S. I. Gallant. *Neural Network Learning and Expert Systems*. Cambridge, MA: MIT Press, 1993.
- [Gat00] B. Gates. *Business @ the Speed of Thought: Succeeding in the Digital Economy*. Warner Books, 2000.
- [GCB+97] J. Gray, S. Chaudhuri, A. Bosworth, A. Layman, D. Reichart, M. Venkatrao, F. Pellow, and H. Pirahesh. Data cube: A relational aggregation operator generalizing group-by, cross-tab and sub-totals. *Data Mining and Knowledge Discovery*, 1:29–54, 1997.
- [GFKT01] L. Getoor, N. Friedman, D. Koller, and B. Taskar. Learning probabilistic models of relational structure. In *Proc. 2001 Int. Conf. Machine Learning (ICML'01)*, pp. 170–177, Williamstown, MA, 2001.
- [GFS+01] H. Galhardas, D. Florescu, D. Shasha, E. Simon, and C.-A. Saita. Declarative data cleaning: Language, model, and algorithms. In *Proc. 2001 Int. Conf. Very Large Data Bases (VLDB'01)*, pp. 371–380, Rome, Italy, Sept. 2001.
- [GG92] A. Gersho and R. M. Gray. *Vector Quantization and Signal Compression*. Kluwer Academic, 1992.
- [GG98] V. Gaede and O. Günther. Multidimensional access methods. *ACM Computing Surveys*, 30:170–231, 1998.

- [GGR99] V. Ganti, J. E. Gehrke, and R. Ramakrishnan. CACTUS—clustering categorical data using summaries. In *Proc. 1999 Int. Conf. Knowledge Discovery and Data Mining (KDD'99)*, pp. 73–83, San Diego, CA, 1999.
- [GGRL99] J. Gehrke, V. Ganti, R. Ramakrishnan, and W.-Y. Loh. BOAT—optimistic decision tree construction. In *Proc. 1999 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'99)*, pp. 169–180, Philadelphia, PA, June 1999.
- [GHL06] H. Gonzalez, J. Han, and X. Li. Flowcube: Constructing RFID flowcubes for multi-dimensional analysis of commodity flows. In *Proc. 2006 Int. Conf. Very Large Data Bases (VLDB'06)*, pp. 834–845, Seoul, Korea, Sept. 2006.
- [GHLK06] H. Gonzalez, J. Han, X. Li, and D. Klabjan. Warehousing and analysis of massive RFID data sets. In *Proc. 2006 Int. Conf. Data Engineering (ICDE'06)*, p. 83, Atlanta, GA, Apr. 2006.
- [GKK⁺01] R. L. Grossman, C. Kamath, P. Kegelmeyer, V. Kumar, and R. R. Namburu. *Data Mining for Scientific and Engineering Applications*. Kluwer Academic, 2001.
- [GKR98] D. Gibson, J. M. Kleinberg, and P. Raghavan. Clustering categorical data: An approach based on dynamical systems. In *Proc. 1998 Int. Conf. Very Large Data Bases (VLDB'98)*, pp. 311–323, New York, NY, Aug. 1998.
- [GM99] A. Gupta and I. S. Mumick. *Materialized Views: Techniques, Implementations, and Applications*. Cambridge, MA: MIT Press, 1999.
- [GMMO00] S. Guha, N. Mishra, R. Motwani, and L. O'Callaghan. Clustering data streams. In *Proc. 2000 Symp. Foundations of Computer Science (FOCS'00)*, pp. 359–366, Redondo Beach, CA, 2000.
- [GMP⁺09] J. Ginsberg, M. H. Mohebbi, R. S. Patel, L. Brammer, M. S. Smolinski, and L. Brilliant. Detecting influenza epidemics using search engine query data. *Nature*, 457:1012–1014, Feb. 2009.
- [GMUW08] H. Garcia-Molina, J. D. Ullman, and J. Widom. *Database Systems: The Complete Book* (2nd ed.). Prentice Hall, 2008.
- [GMV96] I. Guyon, N. Matic, and V. Vapnik. Discovering informative patterns and data cleaning. In U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy (eds.), *Advances in Knowledge Discovery and Data Mining*, pp. 181–203. AAAI/MIT Press, 1996.
- [Gol89] D. Goldberg. *Genetic Algorithms in Search, Optimization, and Machine Learning*. Reading, MA: Addison-Wesley, 1989.
- [GR04] D. A. Grossman and O. Frieder. *Information Retrieval: Algorithms and Heuristics*. New York: Springer, 2004.
- [GR07] P. D. Grunwald and J. Rissanen. *The Minimum Description Length Principle*. Cambridge, MA: MIT Press, 2007.
- [GRG98] J. Gehrke, R. Ramakrishnan, and V. Ganti. RainForest: A framework for fast decision tree construction of large datasets. In *Proc. 1998 Int. Conf. Very Large Data Bases (VLDB'98)*, pp. 416–427, New York, NY, Aug. 1998.
- [GRS98] S. Guha, R. Rastogi, and K. Shim. CURE: An efficient clustering algorithm for large databases. In *Proc. 1998 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'98)*, pp. 73–84, Seattle, WA, June 1998.

- [GRS99] S. Guha, R. Rastogi, and K. Shim. ROCK: A robust clustering algorithm for categorical attributes. In *Proc. 1999 Int. Conf. Data Engineering (ICDE'99)*, pp. 512–521, Sydney, Australia, Mar. 1999.
- [Gru69] F. E. Grubbs. Procedures for detecting outlying observations in samples. *Technometrics*, 11:1–21, 1969.
- [Gup97] H. Gupta. Selection of views to materialize in a data warehouse. In *Proc. 7th Int. Conf. Database Theory (ICDT'97)*, pp. 98–112, Delphi, Greece, Jan. 1997.
- [Gut84] A. Guttman. R-Tree: A dynamic index structure for spatial searching. In *Proc. 1984 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'84)*, pp. 47–57, Boston, MA, June 1984.
- [GW07] R. C. Gonzalez and R. E. Woods. *Digital Image Processing* (3rd ed.). Prentice Hall, 2007.
- [GZ03a] B. Goethals and M. Zaki. An introduction to workshop frequent itemset mining implementations. In *Proc. ICDM'03 Int. Workshop Frequent Itemset Mining Implementations (FIMI'03)*, pp. 1–13, Melbourne, FL, Nov. 2003.
- [GZ03b] G. Grahne and J. Zhu. Efficiently using prefix-trees in mining frequent itemsets. In *Proc. ICDM'03 Int. Workshop on Frequent Itemset Mining Implementations (FIMI'03)*, Melbourne, FL, Nov. 2003.
- [HA04] V. J. Hodge, and J. Austin. A survey of outlier detection methodologies. *Artificial Intelligence Review*, 22:85–126, 2004.
- [HAC⁺99] J. M. Hellerstein, R. Avnur, A. Chou, C. Hidber, C. Olston, V. Raman, T. Roth, and P. J. Haas. Interactive data analysis: The control project. *IEEE Computer*, 32:51–59, 1999.
- [Ham94] J. Hamilton. *Time Series Analysis*. Princeton University Press, 1994.
- [Han98] J. Han. Towards on-line analytical mining in large databases. *SIGMOD Record*, 27:97–107, 1998.
- [Har68] P. E. Hart. The condensed nearest neighbor rule. *IEEE Trans. Information Theory*, 14:515–516, 1968.
- [Har72] J. Hartigan. Direct clustering of a data matrix. *J. American Stat. Assoc.*, 67:123–129, 1972.
- [Har75] J. A. Hartigan. *Clustering Algorithms*. John Wiley & Sons, 1975.
- [Haw80] D. M. Hawkins. *Identification of Outliers*. Chapman & Hall, 1980.
- [Hay99] S. S. Haykin. *Neural Networks: A Comprehensive Foundation*. Prentice-Hall, 1999.
- [Hay08] S. Haykin. *Neural Networks and Learning Machines*. Prentice-Hall, 2008.
- [HB87] S. J. Hanson and D. J. Burr. Minkowski-r back-propagation: Learning in connectionist models with non-euclidian error signals. In *Neural Information Proc. Systems Conf.*, pp. 348–357, Denver, CO, 1987.
- [HBV01] M. Halkidi, Y. Batistakis, and M. Vazirgiannis. On clustering validation techniques. *J. Intelligent Information Systems*, 17:107–145, 2001.
- [HCC93] J. Han, Y. Cai, and N. Cercone. Data-driven discovery of quantitative rules in relational databases. *IEEE Trans. Knowledge and Data Engineering*, 5:29–40, 1993.
- [HCD94] L. B. Holder, D. J. Cook, and S. Djoko. Substructure discovery in the subdue system. In *Proc. AAAI'94 Workshop on Knowledge Discovery in Databases (KDD'94)*, pp. 169–180, Seattle, WA, July 1994.
- [Hec96] D. Heckerman. Bayesian networks for knowledge discovery. In U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy (eds.), *Advances in Knowledge Discovery and Data Mining*, pp. 273–305. Cambridge, MA: MIT Press, 1996.

- [HF94] J. Han and Y. Fu. Dynamic generation and refinement of concept hierarchies for knowledge discovery in databases. In *Proc. AAAI'94 Workshop Knowledge Discovery in Databases (KDD'94)*, pp. 157–168, Seattle, WA, July 1994.
- [HF95] J. Han and Y. Fu. Discovery of multiple-level association rules from large databases. In *Proc. 1995 Int. Conf. Very Large Data Bases (VLDB'95)*, pp. 420–431, Zurich, Switzerland, Sept. 1995.
- [HF96] J. Han and Y. Fu. Exploration of the power of attribute-oriented induction in data mining. In U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy (eds.), *Advances in Knowledge Discovery and Data Mining*, pp. 399–421. AAAI/MIT Press, 1996.
- [HFLP01] P. S. Horn, L. Feng, Y. Li, and A. J. Pesce. Effect of outliers and nonhealthy individuals on reference interval estimation. *Clinical Chemistry*, 47:2137–2145, 2001.
- [HG05] K. A. Heller and Z. Ghahramani. Bayesian hierarchical clustering. In *Proc. 22nd Int. Conf. Machine Learning (ICML'05)*, pp. 297–304, Bonn, Germany, 2005.
- [HG07] A. Hinneburg and H.-H. Gabriel. DENCLUE 2.0: Fast clustering based on kernel density estimation. In *Proc. 2007 Int. Conf. Intelligent Data Analysis (IDA'07)*, pp. 70–80, Ljubljana, Slovenia, 2007.
- [HGC95] D. Heckerman, D. Geiger, and D. M. Chickering. Learning Bayesian networks: The combination of knowledge and statistical data. *Machine Learning*, 20:197–243, 1995.
- [HH01] R. J. Hilderman and H. J. Hamilton. *Knowledge Discovery and Measures of Interest*. Kluwer Academic, 2001.
- [HHW97] J. Hellerstein, P. Haas, and H. Wang. Online aggregation. In *Proc. 1997 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'97)*, pp. 171–182, Tucson, AZ, May 1997.
- [Hig08] R. C. Higgins. *Analysis for Financial Management with S&P Bind-In Card*. Irwin/McGraw-Hill, 2008.
- [HK91] P. Hoschka and W. Klösgen. A support system for interpreting statistical data. In G. Piatetsky-Shapiro and W. J. Frawley (eds.), *Knowledge Discovery in Databases*, pp. 325–346. AAAI/MIT Press, 1991.
- [HK98] A. Hinneburg and D. A. Keim. An efficient approach to clustering in large multimedia databases with noise. In *Proc. 1998 Int. Conf. Knowledge Discovery and Data Mining (KDD'98)*, pp. 58–65, New York, NY, Aug. 1998.
- [HKGT03] M. Hadjieleftheriou, G. Kollios, D. Gunopulos, and V. J. Tsotras. Online discovery of dense areas in spatio-temporal databases. In *Proc. 2003 Int. Symp. Spatial and Temporal Databases (SSTD'03)*, pp. 306–324, Santorini Island, Greece, July 2003.
- [HKKR99] F. Höppner, F. Klawonn, R. Kruse, and T. Runkler. *Fuzzy Cluster Analysis: Methods for Classification, Data Analysis and Image Recognition*. Wiley, 1999.
- [HKP91] J. Hertz, A. Krogh, and R. G. Palmer. *Introduction to the Theory of Neural Computation*. Reading, MA: Addison-Wesley, 1991.
- [HLW07] W. Hsu, M. L. Lee, and J. Wang. *Temporal and Spatio-Temporal Data Mining*. IGI Publishing, 2007.
- [HLZ02] W. Hsu, M. L. Lee, and J. Zhang. Image mining: Trends and developments. *J. Intelligent Information Systems*, 19:7–23, 2002.

- [HMM86] J. Hong, I. Mozetic, and R. S. Michalski. Incremental learning of attribute-based descriptions from examples, the method and user's guide. In *Report ISG 85-5, UIUCDCS-F-86-949*, Department of Computer Science, University of Illinois at Urbana-Champaign, 1986.
- [HMS66] E. B. Hunt, J. Marin, and P. T. Stone. *Experiments in Induction*. Academic Press, 1966.
- [HMS01] D. J. Hand, H. Mannila, and P. Smyth. *Principles of Data Mining (Adaptive Computation and Machine Learning)*. Cambridge, MA: MIT Press, 2001.
- [HN90] R. Hecht-Nielsen. *Neurocomputing*. Reading, MA: Addison-Wesley, 1990.
- [Hor08] R. Horak. *Telecommunications and Data Communications Handbook* (2nd ed.). Wiley-Interscience, 2008.
- [HP07] M. Hua and J. Pei. Cleaning disguised missing data: A heuristic approach. In *Proc. 2007 ACM SIGKDD Intl. Conf. Knowledge Discovery and Data Mining (KDD'07)*, pp. 950–958, San Jose, CA, Aug. 2007.
- [HPDW01] J. Han, J. Pei, G. Dong, and K. Wang. Efficient computation of iceberg cubes with complex measures. In *Proc. 2001 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'01)*, pp. 1–12, Santa Barbara, CA, May 2001.
- [HPS97] J. Hosking, E. Pednault, and M. Sudan. A statistical perspective on data mining. *Future Generation Computer Systems*, 13:117–134, 1997.
- [HPY00] J. Han, J. Pei, and Y. Yin. Mining frequent patterns without candidate generation. In *Proc. 2000 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'00)*, pp. 1–12, Dallas, TX, May 2000.
- [HRMS10] M. Hay, V. Rastogi, G. Miklau, and D. Suciu. Boosting the accuracy of differentially-private queries through consistency. In *Proc. 2010 Int. Conf. Very Large Data Bases (VLDB'10)*, pp. 1021–1032, Singapore, Sept. 2010.
- [HRU96] V. Harinarayan, A. Rajaraman, and J. D. Ullman. Implementing data cubes efficiently. In *Proc. 1996 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'96)*, pp. 205–216, Montreal, Quebec, Canada, June 1996.
- [HS05] J. M. Hellerstein and M. Stonebraker. *Readings in Database Systems* (4th ed.). Cambridge, MA: MIT Press, 2005.
- [HSG90] S. A. Harp, T. Samad, and A. Guha. Designing application-specific neural networks using the genetic algorithm. In D. S. Touretzky (ed.), *Advances in Neural Information Processing Systems II*, pp. 447–454. Morgan Kaufmann, 1990.
- [HT98] T. Hastie and R. Tibshirani. Classification by pairwise coupling. *Ann. Statistics*, 26:451–471, 1998.
- [HTF09] T. Hastie, R. Tibshirani, and J. Friedman. *The Elements of Statistical Learning: Data Mining, Inference, and Prediction* (2nd ed.). Springer Verlag, 2009.
- [Hua98] Z. Huang. Extensions to the k -means algorithm for clustering large data sets with categorical values. *Data Mining and Knowledge Discovery*, 2:283–304, 1998.
- [Hub94] C. H. Huberty. *Applied Discriminant Analysis*. Wiley-Interscience, 1994.
- [Hub96] B. B. Hubbard. *The World According to Wavelets*. A. K. Peters, 1996.
- [HWB⁺04] J. Huan, W. Wang, D. Bandyopadhyay, J. Snoeyink, J. Prins, and A. Tropsha. Mining spatial motifs from protein structure graphs. In *Proc. 8th Int. Conf. Research in Computational Molecular Biology (RECOMB)*, pp. 308–315, San Diego, CA, Mar. 2004.

- [HXD03] Z. He, X. Xu, and S. Deng. Discovering cluster-based local outliers. *Pattern Recognition Lett.*, 24:1641–1650, June, 2003.
- [IGG03] C. Imhoff, N. Gallemmo, and J. G. Geiger. *Mastering Data Warehouse Design: Relational and Dimensional Techniques*. John Wiley & Sons, 2003.
- [IKA02] T. Imielinski, L. Khachiyan, and A. Abdulghani. Cubegrades: Generalizing association rules. *Data Mining and Knowledge Discovery*, 6:219–258, 2002.
- [IM96] T. Imielinski and H. Mannila. A database perspective on knowledge discovery. *Communications of the ACM*, 39:58–64, 1996.
- [Inm96] W. H. Inmon. *Building the Data Warehouse*. John Wiley & Sons, 1996.
- [IWM98] A. Inokuchi, T. Washio, and H. Motoda. An apriori-based algorithm for mining frequent substructures from graph data. In *Proc. 2000 European Symp. Principles of Data Mining and Knowledge Discovery (PKDD'00)*, pp. 13–23, Lyon, France, Sept. 1998.
- [Jac88] R. Jacobs. Increased rates of convergence through learning rate adaptation. *Neural Networks*, 1:295–307, 1988.
- [Jai10] A. K. Jain. Data clustering: 50 years beyond k -means. *Pattern Recognition Lett.*, 31(8):651–666, 2010.
- [Jam85] M. James. *Classification Algorithms*. John Wiley & Sons, 1985.
- [JBD05] X. Ji, J. Bailey, and G. Dong. Mining minimal distinguishing subsequence patterns with gap constraints. In *Proc. 2005 Int. Conf. Data Mining (ICDM'05)*, pp. 194–201, Houston, TX, Nov. 2005.
- [JD88] A. K. Jain and R. C. Dubes. *Algorithms for Clustering Data*. Prentice-Hall, 1988.
- [Jen96] F. V. Jensen. *An Introduction to Bayesian Networks*. Springer Verlag, 1996.
- [JL96] G. H. John and P. Langley. Static versus dynamic sampling for data mining. In *Proc. 1996 Int. Conf. Knowledge Discovery and Data Mining (KDD'96)*, pp. 367–370, Portland, OR, Aug. 1996.
- [JMF99] A. K. Jain, M. N. Murty, and P. J. Flynn. Data clustering: A survey. *ACM Computing Surveys*, 31:264–323, 1999.
- [Joh97] G. H. John. *Enhancements to the Data Mining Process*. Ph.D. Thesis, Computer Science Department, Stanford University, 1997.
- [Joh99] G. H. John. Behind-the-scenes data mining: A report on the KDD-98 panel. *SIGKDD Explorations*, 1:6–8, 1999.
- [JP04] N. C. Jones and P. A. Pevzner. *An Introduction to Bioinformatics Algorithms*. Cambridge, MA: MIT Press, 2004.
- [JSD⁺10] M. Ji, Y. Sun, M. Danilevsky, J. Han, and J. Gao. Graph regularized transductive classification on heterogeneous information networks. In *Proc. 2010 European Conf. Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD'10)*, pp. 570–586, Barcelona, Spain, Sept. 2010.
- [JTH01] W. Jin, K. H. Tung, and J. Han. Mining top- n local outliers in large databases. In *Proc. 2001 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'01)*, pp. 293–298, San Francisco, CA, Aug. 2001.
- [JTHW06] W. Jin, A. K. H. Tung, J. Han, and W. Wang. Ranking outliers using symmetric neighborhood relationship. In *Proc. 2006 Pacific-Asia Conf. Knowledge Discovery and Data Mining (PAKDD'06)*, Singapore, Apr. 2006.
- [JW92] R. A. Johnson and D. A. Wichern. *Applied Multivariate Statistical Analysis* (3rd ed.). Prentice-Hall, 1992.

- [JW02a] G. Jeh and J. Widom. SimRank: A measure of structural-context similarity. In *Proc. 2002 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'02)*, pp. 538–543, Edmonton, Alberta, Canada, July 2002.
- [JW02b] R. A. Johnson and D. A. Wichern. *Applied Multivariate Statistical Analysis* (5th ed.). Prentice Hall, 2002.
- [Kam09] C. Kamath. *Scientific Data Mining: A Practical Perspective*. Society for Industrial and Applied Mathematics (SIAM), 2009.
- [Kas80] G. V. Kass. An exploratory technique for investigating large quantities of categorical data. *Applied Statistics*, 29:119–127, 1980.
- [KBDM09] B. Kulis, S. Basu, I. Dhillon, and R. Mooney. Semi-supervised graph clustering: A kernel approach. *Machine Learning*, 74:1–22, 2009.
- [Kec01] V. Kecman. *Learning and Soft Computing*. Cambridge, MA: MIT Press, 2001.
- [Kei97] D. A. Keim. Visual techniques for exploring databases. In *Tutorial Notes, 3rd Int. Conf. Knowledge Discovery and Data Mining (KDD'97)*, Newport Beach, CA, Aug. 1997.
- [Ker92] R. Kerber. ChiMerge: Discretization of numeric attributes. In *Proc. 1992 Nat. Conf. Artificial Intelligence (AAAI'92)*, pp. 123–128, San Jose, CA, 1992.
- [KF09] D. Koller and N. Friedman. *Probabilistic Graphical Models: Principles and Techniques*. Cambridge, MA: MIT Press, 2009.
- [KH95] K. Koperski and J. Han. Discovery of spatial association rules in geographic information databases. In *Proc. 1995 Int. Symp. Large Spatial Databases (SSD'95)*, pp. 47–66, Portland, ME, Aug. 1995.
- [KH97] I. Kononenko and S. J. Hong. Attribute selection for modeling. *Future Generation Computer Systems*, 13:181–195, 1997.
- [KH09] M.-S. Kim and J. Han. A particle-and-density based evolutionary clustering method for dynamic networks. In *Proc. 2009 Int. Conf. Very Large Data Bases (VLDB'09)*, Lyon, France, Aug. 2009.
- [KHC97] M. Kamber, J. Han, and J. Y. Chiang. Metarule-guided mining of multi-dimensional association rules using data cubes. In *Proc. 1997 Int. Conf. Knowledge Discovery and Data Mining (KDD'97)*, pp. 207–210, Newport Beach, CA, Aug. 1997.
- [KHK99] G. Karypis, E.-H. Han, and V. Kumar. CHAMELEON: A hierarchical clustering algorithm using dynamic modeling. *COMPUTER*, 32:68–75, 1999.
- [KHY⁺08] H. Kargupta, J. Han, P. S. Yu, R. Motwani, and V. Kumar. *Next Generation of Data Mining*. Chapman & Hall/CRC, 2008.
- [KJ97] R. Kohavi and G. H. John. Wrappers for feature subset selection. *Artificial Intelligence*, 97:273–324, 1997.
- [KJSY04] H. Kargupta, A. Joshi, K. Sivakumar, and Y. Yesha. *Data Mining: Next Generation Challenges and Future Directions*. Cambridge, MA: AAAI/MIT Press, 2004.
- [KK01] M. Kuramochi and G. Karypis. Frequent subgraph discovery. In *Proc. 2001 Int. Conf. Data Mining (ICDM'01)*, pp. 313–320, San Jose, CA, Nov. 2001.
- [KKW⁺10] H. S. Kim, S. Kim, T. Weninger, J. Han, and T. Abdelzaher. NDPMine: Efficiently mining discriminative numerical features for pattern-based classification. In *Proc. 2010 European Conf. Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD'10)*, Barcelona, Spain, Sept. 2010.
- [KKZ09] H.-P. Kriegel, P. Kroeger, and A. Zimek. Clustering high-dimensional data: A survey on subspace clustering, pattern-based clustering, and correlation clustering. *ACM Trans. Knowledge Discovery from Data (TKDD)*, 3(1):1–58, 2009.

- [KLA⁺08] M. Khan, H. Le, H. Ahmadi, T. Abdelzaher, and J. Han. DustMiner: Troubleshooting interactive complexity bugs in sensor networks. In *Proc. 2008 ACM Int. Conf. Embedded Networked Sensor Systems (SenSys'08)*, pp. 99–112, Raleigh, NC, Nov. 2008.
- [Kle99] J. M. Kleinberg. Authoritative sources in a hyperlinked environment. *J. ACM*, 46: 604–632, 1999.
- [KLV⁺98] R. L. Kennedy, Y. Lee, B. Van Roy, C. D. Reed, and R. P. Lippman. *Solving Data Mining Problems Through Pattern Recognition*. Prentice-Hall, 1998.
- [KM90] Y. Kodratoff and R. S. Michalski. *Machine Learning, An Artificial Intelligence Approach*, Vol. 3. Morgan Kaufmann, 1990.
- [KM94] J. Kivinen and H. Mannila. The power of sampling in knowledge discovery. In *Proc. 13th ACM Symp. Principles of Database Systems*, pp. 77–85, Minneapolis, MN, May 1994.
- [KMN⁺02] T. Kanungo, D. M. Mount, N. S. Netanyahu, C. D. Piatko, R. Silverman, and A. Y. Wu. An efficient k -means clustering algorithm: Analysis and implementation. *IEEE Trans. Pattern Analysis and Machine Intelligence (PAMI)*, 24:881–892, 2002.
- [KMR⁺94] M. Klemettinen, H. Mannila, P. Ronkainen, H. Toivonen, and A. I. Verkamo. Finding interesting rules from large sets of discovered association rules. In *Proc. 3rd Int. Conf. Information and Knowledge Management*, pp. 401–408, Gaithersburg, MD, Nov. 1994.
- [KMS03] J. Kubica, A. Moore, and J. Schneider. Tractable group detection on large link data sets. In *Proc. 2003 Int. Conf. Data Mining (ICDM'03)*, pp. 573–576, Melbourne, FL, Nov. 2003.
- [KN97] E. Knorr and R. Ng. A unified notion of outliers: Properties and computation. In *Proc. 1997 Int. Conf. Knowledge Discovery and Data Mining (KDD'97)*, pp. 219–222, Newport Beach, CA, Aug. 1997.
- [KNNL04] M. H. Kutner, C. J. Nachtsheim, J. Neter, and W. Li. *Applied Linear Statistical Models with Student CD*. Irwin, 2004.
- [KNT00] E. M. Knorr, R. T. Ng, and V. Tucakov. Distance-based outliers: Algorithms and applications. *The VLDB J.*, 8:237–253, 2000.
- [Koh95] R. Kohavi. A study of cross-validation and bootstrap for accuracy estimation and model selection. In *Proc. 14th Joint Int. Conf. Artificial Intelligence (IJCAI'95)*, Vol. 2, pp. 1137–1143, Montreal, Quebec, Canada, Aug. 1995.
- [Kol93] J. L. Kolodner. *Case-Based Reasoning*. Morgan Kaufmann, 1993.
- [Kon95] I. Kononenko. On biases in estimating multi-valued attributes. In *Proc. 14th Joint Int. Conf. Artificial Intelligence (IJCAI'95)*, Vol. 2, pp. 1034–1040, Montreal, Quebec, Canada, Aug. 1995.
- [Kot88] P. Koton. Reasoning about evidence in causal explanation. In *Proc. 7th Nat. Conf. Artificial Intelligence (AAAI'88)*, pp. 256–263, St. Paul, MN, Aug. 1988.
- [KPR98] J. M. Kleinberg, C. Papadimitriou, and P. Raghavan. A microeconomic view of data mining. *Data Mining and Knowledge Discovery*, 2:311–324, 1998.
- [KPS03] R. M. Karp, C. H. Papadimitriou, and S. Shenker. A simple algorithm for finding frequent elements in streams and bags. *ACM Trans. Database Systems*, 28:51–55, 2003.
- [KR90] L. Kaufman and P. J. Rousseeuw. *Finding Groups in Data: An Introduction to Cluster Analysis*. John Wiley & Sons, 1990.
- [KR02] R. Kimball and M. Ross. *The Data Warehouse Toolkit: The Complete Guide to Dimensional Modeling* (2nd ed.). John Wiley & Sons, 2002.

- [KR03] D. Krane and R. Raymer. *Fundamental Concepts of Bioinformatics*. Benjamin Cummings, 2003.
- [Kre02] V. Krebs. Mapping networks of terrorist cells. *Connections*, 24:43–52 (Winter), 2002.
- [KRR⁺00] R. Kumar, P. Raghavan, S. Rajagopalan, D. Sivakumar, A. Tomkins, and E. Upfal. Stochastic models for the web graph. In *Proc. 2000 IEEE Symp. Foundations of Computer Science (FOCS'00)*, pp. 57–65, Redondo Beach, CA, Nov. 2000.
- [KRTM08] R. Kimball, M. Ross, W. Thornthwaite, and J. Mundy. *The Data Warehouse Lifecycle Toolkit*. Hoboken, NJ: John Wiley & Sons, 2008.
- [KSZ08] H.-P. Kriegel, M. Schubert, and A. Zimek. Angle-based outlier detection in high-dimensional data. In *Proc. 2008 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'08)*, pp. 444–452, Las Vegas, NV, Aug. 2008.
- [KT99] J. M. Kleinberg and A. Tomkins. Application of linear algebra in information retrieval and hypertext analysis. In *Proc. 18th ACM Symp. Principles of Database Systems (PODS'99)*, pp. 185–193, Philadelphia, PA, May 1999.
- [KYB03] I. Korf, M. Yandell, and J. Bedell. *BLAST*. Sebastopol, CA: O'Reilly Media, 2003.
- [Lam98] W. Lam. Bayesian network refinement via machine learning approach. *IEEE Trans. Pattern Analysis and Machine Intelligence*, 20:240–252, 1998.
- [Lau95] S. L. Lauritzen. The EM algorithm for graphical association models with missing data. *Computational Statistics and Data Analysis*, 19:191–201, 1995.
- [LCH⁺09] D. Lo, H. Cheng, J. Han, S. Khoo, and C. Sun. Classification of software behaviors for failure detection: A discriminative pattern mining approach. In *Proc. 2009 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'09)*, pp. 557–566, Paris, France, June 2009.
- [LDH⁺08] C. X. Lin, B. Ding, J. Han, F. Zhu, and B. Zhao. Text cube: Computing IR measures for multidimensional text database analysis. In *Proc. 2008 Int. Conf. Data Mining (ICDM'08)*, pp. 905–910, Pisa, Italy, Dec. 2008.
- [LDH⁺10] Z. Li, B. Ding, J. Han, R. Kays, and P. Nye. Mining periodic behaviors for moving objects. In *Proc. 2010 ACM SIGKDD Conf. Knowledge Discovery and Data Mining (KDD'10)*, pp. 1099–1108, Washington, DC, July 2010.
- [LDR00] J. Li, G. Dong, and K. Ramamohanarao. Making use of the most expressive jumping emerging patterns for classification. In *Proc. 2000 Pacific-Asia Conf. Knowledge Discovery and Data Mining (PAKDD'00)*, pp. 220–232, Kyoto, Japan, Apr. 2000.
- [LDS90] Y. Le Cun, J. S. Denker, and S. A. Solla. Optimal brain damage. In D. Touretzky (ed.), *Advances in Neural Information Processing Systems*. Morgan Kaufmann, 1990.
- [Lea96] D. B. Leake. CBR in context: The present and future. In D. B. Leake (ed.), *Cased-Based Reasoning: Experiences, Lessons, and Future Directions*, pp. 3–30. AAAI Press, 1996.
- [LGT97] S. Lawrence, C. L. Giles, and A. C. Tsoi. Symbolic conversion, grammatical inference and rule extraction for foreign exchange rate prediction. In Y. Abu-Mostafa, A. S. Weigend, and P. N. Refenes (eds.), *Neural Networks in the Capital Markets*. London: World Scientific, 1997.
- [LHC97] B. Liu, W. Hsu, and S. Chen. Using general impressions to analyze discovered classification rules. In *Proc. 1997 Int. Conf. Knowledge Discovery and Data Mining (KDD'97)*, pp. 31–36, Newport Beach, CA, Aug. 1997.

- [LHF98] H. Lu, J. Han, and L. Feng. Stock movement and n -dimensional inter-transaction association rules. In *Proc. 1998 SIGMOD Workshop Research Issues on Data Mining and Knowledge Discovery (DMKD'98)*, pp. 12:1–12:7, Seattle, WA, June 1998.
- [LHG04] X. Li, J. Han, and H. Gonzalez. High-dimensional OLAP: A minimal cubing approach. In *Proc. 2004 Int. Conf. Very Large Data Bases (VLDB'04)*, pp. 528–539, Toronto, Ontario, Canada, Aug. 2004.
- [LHKG07] X. Li, J. Han, S. Kim, and H. Gonzalez. Roam: Rule- and motif-based anomaly detection in massive moving object data sets. In *Proc. 2007 SIAM Int. Conf. Data Mining (SDM'07)*, Minneapolis, MN, Apr. 2007.
- [LHM98] B. Liu, W. Hsu, and Y. Ma. Integrating classification and association rule mining. In *Proc. 1998 Int. Conf. Knowledge Discovery and Data Mining (KDD'98)*, pp. 80–86, New York, Aug. 1998.
- [LHP01] W. Li, J. Han, and J. Pei. CMAR: Accurate and efficient classification based on multiple class-association rules. In *Proc. 2001 Int. Conf. Data Mining (ICDM'01)*, pp. 369–376, San Jose, CA, Nov. 2001.
- [LHTD02] H. Liu, F. Hussain, C. L. Tan, and M. Dash. Discretization: An enabling technique. *Data Mining and Knowledge Discovery*, 6:393–423, 2002.
- [LHW07] J.-G. Lee, J. Han, and K. Whang. Clustering trajectory data. In *Proc. 2007 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'07)*, Beijing, China, June 2007.
- [LHXS06] H. Liu, J. Han, D. Xin, and Z. Shao. Mining frequent patterns on very high dimensional data: A top-down row enumeration approach. In *Proc. 2006 SIAM Int. Conf. Data Mining (SDM'06)*, Bethesda, MD, Apr. 2006.
- [LHY⁺08] X. Li, J. Han, Z. Yin, J.-G. Lee, and Y. Sun. Sampling Cube: A framework for statistical OLAP over sampling data. In *Proc. 2008 ACM SIGMOD Int. Conf. Management of Data (SIGMOD'08)*, pp. 779–790, Vancouver, British Columbia, Canada, June 2008.
- [Liu06] B. Liu. *Web Data Mining: Exploring Hyperlinks, Contents, and Usage Data*. New York: Springer, 2006.
- [LJK00] J. Laurikkala, M. Juhola, and E. Kentala. Informal identification of outliers in medical data. In *Proc. 5th Int. Workshop on Intelligent Data Analysis in Medicine and Pharmacology*, Berlin, Germany, Aug. 2000.
- [LKCH03] Y.-K. Lee, W.-Y. Kim, Y. D. Cai, and J. Han. CoMine: Efficient mining of correlated patterns. In *Proc. 2003 Int. Conf. Data Mining (ICDM'03)*, pp. 581–584, Melbourne, FL, Nov. 2003.
- [LKF05] J. Leskovec, J. Kleinberg, and C. Faloutsos. Graphs over time: Densification laws, shrinking diameters and possible explanations. In *Proc. 2005 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'05)*, pp. 177–187, Chicago, IL, Aug. 2005.
- [LLLY03] G. Liu, H. Lu, W. Lou, and J. X. Yu. On computing, storing and querying frequent patterns. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, pp. 607–612, Washington, DC, Aug. 2003.
- [LLMZ04] Z. Li, S. Lu, S. Myagmar, and Y. Zhou. CP-Miner: A tool for finding copy-paste and related bugs in operating system code. In *Proc. 2004 Symp. Operating Systems Design and Implementation (OSDI'04)*, pp. 20–22, San Francisco, CA, Dec. 2004.
- [Llo57] S. P. Lloyd. Least squares quantization in PCM. *IEEE Trans. Information Theory*, 28:128–137, 1982 (original version: Technical Report, Bell Labs, 1957).

- [LLS00] T.-S. Lim, W.-Y. Loh, and Y.-S. Shih. A comparison of prediction accuracy, complexity, and training time of thirty-three old and new classification algorithms. *Machine Learning*, 40:203–228, 2000.
- [LM97] K. Laskey and S. Mahoney. Network fragments: Representing knowledge for constructing probabilistic models. In *Proc. 13th Annual Conf. Uncertainty in Artificial Intelligence*, pp. 334–341, San Francisco, CA, Aug. 1997.
- [LM98a] H. Liu and H. Motoda. *Feature Selection for Knowledge Discovery and Data Mining*. Kluwer Academic, 1998.
- [LM98b] H. Liu and H. Motoda (eds.). *Feature Extraction, Construction, and Selection: A Data Mining Perspective*. Kluwer Academic, 1998.
- [LNHP99] L. V. S. Lakshmanan, R. Ng, J. Han, and A. Pang. Optimization of constrained frequent set queries with 2-variable constraints. In *Proc. 1999 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'99)*, pp. 157–168, Philadelphia, PA, June 1999.
- [L-NK03] D. Liben-Nowell and J. Kleinberg. The link prediction problem for social networks. In *Proc. 2003 Int. Conf. Information and Knowledge Management (CIKM'03)*, pp. 556–559, New Orleans, LA, Nov. 2003.
- [Los01] D. Loshin. *Enterprise Knowledge Management: The Data Quality Approach*. Morgan Kaufmann, 2001.
- [LP97] A. Lenarcik and Z. Piasta. Probabilistic rough classifiers with mixture of discrete and continuous variables. In T. Y. Lin and N. Cercone (eds.), *Rough Sets and Data Mining: Analysis for Imprecise Data*, pp. 373–383, Kluwer Academic, 1997.
- [LPH02] L. V. S. Lakshmanan, J. Pei, and J. Han. Quotient cube: How to summarize the semantics of a data cube. In *Proc. 2002 Int. Conf. Very Large Data Bases (VLDB'02)*, pp. 778–789, Hong Kong, China, Aug. 2002.
- [LPWH02] J. Liu, Y. Pan, K. Wang, and J. Han. Mining frequent itemsets by opportunistic projection. In *Proc. 2002 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'02)*, pp. 239–248, Edmonton, Alberta, Canada, July 2002.
- [LPZ03] L. V. S. Lakshmanan, J. Pei, and Y. Zhao. QC-Trees: An efficient summary structure for semantic OLAP. In *Proc. 2003 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'03)*, pp. 64–75, San Diego, CA, June 2003.
- [LS95] H. Liu and R. Setiono. Chi2: Feature selection and discretization of numeric attributes. In *Proc. 1995 IEEE Int. Conf. Tools with AI (ICTAI'95)*, pp. 388–391, Washington, DC, Nov. 1995.
- [LS97] W. Y. Loh and Y. S. Shih. Split selection methods for classification trees. *Statistica Sinica*, 7:815–840, 1997.
- [LSBZ87] P. Langley, H. A. Simon, G. L. Bradshaw, and J. M. Zytkow. *Scientific Discovery: Computational Explorations of the Creative Processes*. Cambridge, MA: MIT Press, 1987.
- [LSL95] H. Lu, R. Setiono, and H. Liu. Neurorule: A connectionist approach to data mining. In *Proc. 1995 Int. Conf. Very Large Data Bases (VLDB'95)*, pp. 478–489, Zurich, Switzerland, Sept. 1995.
- [LSW97] B. Lent, A. Swami, and J. Widom. Clustering association rules. In *Proc. 1997 Int. Conf. Data Engineering (ICDE'97)*, pp. 220–231, Birmingham, England, Apr. 1997.
- [Lux07] U. Luxburg. A tutorial on spectral clustering. *Statistics and Computing*, 17:395–416, 2007.

- [LV88] W. Y. Loh and N. Vanichsetakul. Tree-structured classification via generalized discriminant analysis. *J. American Statistical Association*, 83:715–728, 1988.
- [LZ05] Z. Li and Y. Zhou. PR-Miner: Automatically extracting implicit programming rules and detecting violations in large software code. In *Proc. 2005 ACM SIGSOFT Symp. Foundations of Software Engineering (FSE'05)*, Lisbon, Portugal, Sept. 2005.
- [MA03] S. Mitra and T. Acharya. *Data Mining: Multimedia, Soft Computing, and Bioinformatics*. John Wiley & Sons, 2003.
- [MAE05] A. Metwally, D. Agrawal, and A. El Abbadi. Efficient computation of frequent and top- k elements in data streams. In *Proc. 2005 Int. Conf. Database Theory (ICDT'05)*, pp. 398–412, Edinburgh, Scotland, Jan. 2005.
- [Mac67] J. MacQueen. Some methods for classification and analysis of multivariate observations. In *Proc. 5th Berkeley Symp. Math. Stat. Prob.*, 1:281–297, Berkeley, CA, 1967.
- [Mag94] J. Magidson. The CHAID approach to segmentation modeling: CHI-squared automatic interaction detection. In R. P. Bagozzi (ed.), *Advanced Methods of Marketing Research*, pp. 118–159. Blackwell Business, 1994.
- [Man00] H. Mannila. Theoretical frameworks of data mining. *SIGKDD Explorations*, 1:30–32, 2000.
- [MAR96] M. Mehta, R. Agrawal, and J. Rissanen. SLIQ: A fast scalable classifier for data mining. In *Proc. 1996 Int. Conf. Extending Database Technology (EDBT'96)*, pp. 18–32, Avignon, France, Mar. 1996.
- [Mar09] S. Marsland. *Machine Learning: An Algorithmic Perspective*. Chapman & Hall/CRC, 2009.
- [MB88] G. J. McLachlan and K. E. Basford. *Mixture Models: Inference and Applications to Clustering*. John Wiley & Sons, 1988.
- [MC03] M. V. Mahoney and P. K. Chan. Learning rules for anomaly detection of hostile network traffic. In *Proc. 2003 Int. Conf. Data Mining (ICDM'03)*, Melbourne, FL, Nov. 2003.
- [MCK⁺04] N. Mamoulis, H. Cao, G. Kollios, M. Hadjieleftheriou, Y. Tao, and D. Cheung. Mining, indexing, and querying historical spatiotemporal data. In *Proc. 2004 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'04)*, pp. 236–245, Seattle, WA, Aug. 2004.
- [MCM83] R. S. Michalski, J. G. Carbonell, and T. M. Mitchell. *Machine Learning, An Artificial Intelligence Approach*, Vol. 1. Morgan Kaufmann, 1983.
- [MCM86] R. S. Michalski, J. G. Carbonell, and T. M. Mitchell. *Machine Learning, An Artificial Intelligence Approach*, Vol. 2. Morgan Kaufmann, 1986.
- [MD88] M. Muralikrishna and D. J. DeWitt. Equi-depth histograms for estimating selectivity factors for multi-dimensional queries. In *Proc. 1988 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'88)*, pp. 28–36, Chicago, IL, June 1988.
- [Mei03] M. Meilă. Comparing clusterings by the variation of information. In *Proc. 16th Annual Conf. Computational Learning Theory (COLT'03)*, pp. 173–187, Washington, DC, Aug. 2003.
- [Mei05] M. Meilă. Comparing clusterings: An axiomatic view. In *Proc. 22nd Int. Conf. Machine Learning (ICML'05)*, pp. 577–584, Bonn, Germany, 2005.
- [Men03] J. Mena. *Investigative Data Mining with Security and Criminal Detection*. Butterworth-Heinemann, 2003.

- [MFS95] D. Malerba, E. Floriana, and G. Semeraro. A further comparison of simplification methods for decision tree induction. In D. Fisher and H. Lenz (eds.), *Learning from Data: AI and Statistics*. Springer Verlag, 1995.
- [MH95] J. K. Martin and D. S. Hirschberg. The time complexity of decision tree induction. In *Technical Report ICS-TR 95-27*, pp. 1–27, Department of Information and Computer Science, University of California, Irvine, CA, Aug. 1995.
- [MH09] H. Miller and J. Han. *Geographic Data Mining and Knowledge Discovery* (2nd ed.). Chapman & Hall/CRC, 2009.
- [Mic83] R. S. Michalski. A theory and methodology of inductive learning. In R. S. Michalski, J. G. Carbonell, and T. M. Mitchell (eds.), *Machine Learning: An Artificial Intelligence Approach*, Vol. 1, pp. 83–134. Morgan Kaufmann, 1983.
- [Mic92] Z. Michalewicz. *Genetic Algorithms + Data Structures = Evolution Programs*. Springer Verlag, 1992.
- [Mil98] R. G. Miller. *Survival Analysis*. Wiley-Interscience, 1998.
- [Min89] J. Mingers. An empirical comparison of pruning methods for decision-tree induction. *Machine Learning*, 4:227–243, 1989.
- [Mir98] B. Mirkin. Mathematical classification and clustering. *J. Global Optimization*, 12:105–108, 1998.
- [Mit96] M. Mitchell. *An Introduction to Genetic Algorithms*. Cambridge, MA: MIT Press, 1996.
- [Mit97] T. M. Mitchell. *Machine Learning*. McGraw-Hill, 1997.
- [MK91] M. Manago and Y. Kodratoff. Induction of decision trees from complex structured data. In G. Piatetsky-Shapiro and W. J. Frawley (eds.), *Knowledge Discovery in Databases*, pp. 289–306. AAAI/MIT Press, 1991.
- [MLSZ06] Q. Mei, C. Liu, H. Su, and C. Zhai. A probabilistic approach to spatiotemporal theme pattern mining on weblogs. In *Proc. 15th Int. Conf. World Wide Web (WWW'06)*, pp. 533–542, Edinburgh, Scotland, May 2006.
- [MM95] J. Major and J. Mangano. Selecting among rules induced from a hurricane database. *J. Intelligent Information Systems*, 4:39–52, 1995.
- [MM02] G. Manku and R. Motwani. Approximate frequency counts over data streams. In *Proc. 2002 Int. Conf. Very Large Data Bases (VLDB'02)*, pp. 346–357, Hong Kong, China, Aug. 2002.
- [MN89] M. Mézard and J.-P. Nadal. Learning in feedforward layered networks: The tiling algorithm. *J. Physics*, 22:2191–2204, 1989.
- [MO04] S. C. Madeira and A. L. Oliveira. Biclustering algorithms for biological data analysis: A survey. *IEEE/ACM Trans. Computational Biology and Bioinformatics*, 1(1):24–25, 2004.
- [MP69] M. L. Minsky and S. Papert. *Perceptrons: An Introduction to Computational Geometry*. Cambridge, MA: MIT Press, 1969.
- [MRA95] M. Metha, J. Rissanen, and R. Agrawal. MDL-based decision tree pruning. In *Proc. 1995 Int. Conf. Knowledge Discovery and Data Mining (KDD'95)*, pp. 216–221, Montreal, Quebec, Canada, Aug. 1995.
- [MRS08] C. D. Manning, P. Raghavan, and H. Schütze. *Introduction to Information Retrieval*. Cambridge University Press, 2008.
- [MS03a] M. Markou and S. Singh. Novelty detection: A review—part 1: Statistical approaches. *Signal Processing*, 83:2481–2497, 2003.

- [MS03b] M. Markou and S. Singh. Novelty detection: A review—part 2: Neural network based approaches. *Signal Processing*, 83:2499–2521, 2003.
- [MST94] D. Michie, D. J. Spiegelhalter, and C. C. Taylor. *Machine Learning, Neural and Statistical Classification*. Chichester, England: Ellis Horwood, 1994.
- [MT94] R. S. Michalski and G. Tecuci. *Machine Learning, A Multistrategy Approach*, Vol. 4. Morgan Kaufmann, 1994.
- [MTV94] H. Mannila, H. Toivonen, and A. I. Verkamo. Efficient algorithms for discovering association rules. In *Proc. AAAI'94 Workshop Knowledge Discovery in Databases (KDD'94)*, pp. 181–192, Seattle, WA, July 1994.
- [MTV97] H. Mannila, H. Toivonen, and A. I. Verkamo. Discovery of frequent episodes in event sequences. *Data Mining and Knowledge Discovery*, 1:259–289, 1997.
- [Mur98] S. K. Murthy. Automatic construction of decision trees from data: A multi-disciplinary survey. *Data Mining and Knowledge Discovery*, 2:345–389, 1998.
- [Mut05] S. Muthukrishnan. *Data Streams: Algorithms and Applications*. Now Publishers, 2005.
- [MXC⁺07] Q. Mei, D. Xin, H. Cheng, J. Han, and C. Zhai. Semantic annotation of frequent patterns. *ACM Trans. Knowledge Discovery from Data (TKDD)*, 15:321–348, 2007.
- [MY97] R. J. Miller and Y. Yang. Association rules over interval data. In *Proc. 1997 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'97)*, pp. 452–461, Tucson, AZ, May 1997.
- [MZ06] Q. Mei and C. Zhai. A mixture model for contextual text mining. In *Proc. 2006 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'06)*, pp. 649–655, Philadelphia, PA, Aug. 2006.
- [NB86] T. Niblett and I. Bratko. Learning decision rules in noisy domains. In M. A. Brammer (ed.), *Expert Systems '86: Research and Development in Expert Systems III*, pp. 25–34. British Computer Society Specialist Group on Expert Systems, Dec. 1986.
- [NBW06] M. Newman, A.-L. Barabasi, and D. J. Watts. *The Structure and Dynamics of Networks*. Princeton University Press, 2006.
- [NC03] C. C. Noble and D. J. Cook. Graph-based anomaly detection. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, pp. 631–636, Washington, DC, Aug. 2003.
- [New10] M. Newman. *Networks: An Introduction*. Oxford University Press, 2010.
- [NG04] M. E. J. Newman and M. Girvan. Finding and evaluating community structure in networks. *Physical Rev. E*, 69:113–128, 2004.
- [NGE-R09] J. Neville, B. Gallaher, and T. Eliassi-Rad. Evaluating statistical tests for within-network classifiers of relational data. In *Proc. 2009 Int. Conf. Data Mining (ICDM'09)*, pp. 397–406, Miami, FL, Dec. 2009.
- [NH94] R. Ng and J. Han. Efficient and effective clustering method for spatial data mining. In *Proc. 1994 Int. Conf. Very Large Data Bases (VLDB'94)*, pp. 144–155, Santiago, Chile, Sept. 1994.
- [NJW01] A. Y. Ng, M. I. Jordan, and Y. Weiss. On spectral clustering: Analysis and an algorithm. In T. G. Dietterich, S. Becker, and Z. Ghahramani (eds.), *Advances in Neural Information Processing Systems 14*. pp. 849–856, Cambridge, MA: MIT Press, 2001.
- [NK04] S. Nijssen and J. Kok. A quick start in frequent structure mining can make a difference. In *Proc. 2004 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'04)*, pp. 647–652, Seattle, WA, Aug. 2004.

- [NKNW96] J. Neter, M. H. Kutner, C. J. Nachtsheim, and L. Wasserman. *Applied Linear Statistical Models* (4th ed.). Irwin, 1996.
- [NLHP98] R. Ng, L. V. S. Lakshmanan, J. Han, and A. Pang. Exploratory mining and pruning optimizations of constrained associations rules. In *Proc. 1998 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'98)*, pp. 13–24, Seattle, WA, June 1998.
- [NRS99] A. Natsev, R. Rastogi, and K. Shim. Walrus: A similarity retrieval algorithm for image databases. In *Proc. 1999 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'99)*, pp. 395–406, Philadelphia, PA, June 1999.
- [NW99] J. Nocedal and S. J. Wright. *Numerical Optimization*. Springer Verlag, 1999.
- [OFG97] E. Osuna, R. Freund, and F. Girosi. An improved training algorithm for support vector machines. In *Proc. 1997 IEEE Workshop Neural Networks for Signal Processing (NNSP'97)*, pp. 276–285, Amelia Island, FL, Sept. 1997.
- [OG95] P. O'Neil and G. Graefe. Multi-table joins through bitmapped join indices. *SIGMOD Record*, 24:8–11, Sept. 1995.
- [Ols03] J. E. Olson. *Data Quality: The Accuracy Dimension*. Morgan Kaufmann, 2003.
- [Omi03] E. Omiecinski. Alternative interest measures for mining associations. *IEEE Trans. Knowledge and Data Engineering*, 15:57–69, 2003.
- [OMM⁺02] L. O'Callaghan, A. Meyerson, R. Motwani, N. Mishra, and S. Guha. Streaming-data algorithms for high-quality clustering. In *Proc. 2002 Int. Conf. Data Engineering (ICDE'02)*, pp. 685–696, San Francisco, CA, Apr. 2002.
- [OQ97] P. O'Neil and D. Quass. Improved query performance with variant indexes. In *Proc. 1997 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'97)*, pp. 38–49, Tucson, AZ, May 1997.
- [ORS98] B. Özden, S. Ramaswamy, and A. Silberschatz. Cyclic association rules. In *Proc. 1998 Int. Conf. Data Engineering (ICDE'98)*, pp. 412–421, Orlando, FL, Feb. 1998.
- [Pag89] G. Pagallo. Learning DNF by decision trees. In *Proc. 1989 Int. Joint Conf. Artificial Intelligence (IJCAI'89)*, pp. 639–644, San Francisco, CA, 1989.
- [Paw91] Z. Pawlak. *Rough Sets, Theoretical Aspects of Reasoning about Data*. Kluwer Academic, 1991.
- [PB00] J. C. Pinheiro and D. M. Bates. *Mixed Effects Models in S and S-PLUS*. Springer Verlag, 2000.
- [PBTL99] N. Pasquier, Y. Bastide, R. Taouil, and L. Lakhal. Discovering frequent closed itemsets for association rules. In *Proc. 7th Int. Conf. Database Theory (ICDT'99)*, pp. 398–416, Jerusalem, Israel, Jan. 1999.
- [PCT⁺03] F. Pan, G. Cong, A. K. H. Tung, J. Yang, and M. Zaki. CARPENTER: Finding closed patterns in long biological datasets. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, pp. 637–642, Washington, DC, Aug. 2003.
- [PCY95a] J. S. Park, M. S. Chen, and P. S. Yu. An effective hash-based algorithm for mining association rules. In *Proc. 1995 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'95)*, pp. 175–186, San Jose, CA, May 1995.
- [PCY95b] J. S. Park, M. S. Chen, and P. S. Yu. Efficient parallel mining for association rules. In *Proc. 4th Int. Conf. Information and Knowledge Management*, pp. 31–36, Baltimore, MD, Nov. 1995.
- [Pea88] J. Pearl. *Probabilistic Reasoning in Intelligent Systems*. Morgan Kaufmann, 1988.

- [PHL01] J. Pei, J. Han, and L. V. S. Lakshmanan. Mining frequent itemsets with convertible constraints. In *Proc. 2001 Int. Conf. Data Engineering (ICDE'01)*, pp. 433–442, Heidelberg, Germany, Apr. 2001.
- [PHL⁺01] J. Pei, J. Han, H. Lu, S. Nishio, S. Tang, and D. Yang. H-Mine: Hyper-Structure Mining of Frequent Patterns in Large Databases. In *Proc. 2001 Int. Conf. Data Mining (ICDM'01)*, pp. 441–448, San Jose, CA, Nov. 2001.
- [PHL04] L. Parsons, E. Haque, and H. Liu. Subspace clustering for high dimensional data: A review. *SIGKDD Explorations*, 6:90–105, 2004.
- [PHM00] J. Pei, J. Han, and R. Mao. CLOSET: An efficient algorithm for mining frequent closed itemsets. In *Proc. 2000 ACM-SIGMOD Int. Workshop Data Mining and Knowledge Discovery (DMKD'00)*, pp. 11–20, Dallas, TX, May 2000.
- [PHM-A⁺01] J. Pei, J. Han, B. Mortazavi-Asl, H. Pinto, Q. Chen, U. Dayal, and M.-C. Hsu. PrefixSpan: Mining sequential patterns efficiently by prefix-projected pattern growth. In *Proc. 2001 Int. Conf. Data Engineering (ICDE'01)*, pp. 215–224, Heidelberg, Germany, Apr. 2001.
- [PHM-A⁺04] J. Pei, J. Han, B. Mortazavi-Asl, J. Wang, H. Pinto, Q. Chen, U. Dayal, and M.-C. Hsu. Mining sequential patterns by pattern-growth: The prefixSpan approach. *IEEE Trans. Knowledge and Data Engineering*, 16:1424–1440, 2004.
- [PI97] V. Poosala and Y. Ioannidis. Selectivity estimation without the attribute value independence assumption. In *Proc. 1997 Int. Conf. Very Large Data Bases (VLDB'97)*, pp. 486–495, Athens, Greece, Aug. 1997.
- [PKG03] S. Papadimitriou, H. Kitagawa, P. B. Gibbons, and C. Faloutsos. Loci: Fast outlier detection using the local correlation integral. In *Proc. 2003 Int. Conf. Data Engineering (ICDE'03)*, pp. 315–326, Bangalore, India, Mar. 2003.
- [PKMT99] A. Pfeffer, D. Koller, B. Milch, and K. Takusagawa. SPOOK: A system for probabilistic object-oriented knowledge representation. In *Proc. 15th Annual Conf. Uncertainty in Artificial Intelligence (UAI'99)*, pp. 541–550, Stockholm, Sweden, 1999.
- [PKZT01] D. Papadias, P. Kalnis, J. Zhang, and Y. Tao. Efficient OLAP operations in spatial data warehouses. In *Proc. 2001 Int. Symp. Spatial and Temporal Databases (SSTD'01)*, pp. 443–459, Redondo Beach, CA, July 2001.
- [PL07] B. Pang and L. Lee. Opinion mining and sentiment analysis. *Foundations and Trends in Information Retrieval*, 2:1–135, 2007.
- [Pla98] J. C. Platt. Fast training of support vector machines using sequential minimal optimization. In B. Schölkopf, C. J. C. Burges, and A. Smola (eds.), *Advances in Kernel Methods—Support Vector Learning*, pp. 185–208. Cambridge, MA: MIT Press, 1998.
- [PP07] A. Patcha, and J.-M. Park. An overview of anomaly detection techniques: Existing solutions and latest technological trends. *Computer Networks*, 51(12):3448–3470, 2007.
- [PS85] F. P. Preparata and M. I. Shamos. *Computational Geometry: An Introduction*. Springer Verlag, 1985.
- [P-S91] G. Piatetsky-Shapiro. *Notes AAAI'91 Workshop Knowledge Discovery in Databases (KDD'91)*. Anaheim, CA, July 1991.
- [P-SF91] G. Piatetsky-Shapiro and W. J. Frawley. *Knowledge Discovery in Databases*. AAAI/MIT Press, 1991.
- [PTCX04] F. Pan, A. K. H. Tung, G. Cong, and X. Xu. COBBLER: Combining column and row enumeration for closed pattern discovery. In *Proc. 2004 Int. Conf. Scientific and Statistical Database Management (SSDBM'04)*, pp. 21–30, Santorini Island, Greece, June 2004.

- [PTVF07] W. H. Press, S. A. Teukolosky, W. T. Vetterling, and B. P. Flannery. *Numerical Recipes: The Art of Scientific Computing*. Cambridge: Cambridge University Press, 2007.
- [PY10] S. J. Pan and Q. Yang. A survey on transfer learning. *IEEE Trans. Knowledge and Data Engineering*, 22:1345–1359, 2010.
- [Pyl99] D. Pyle. *Data Preparation for Data Mining*. Morgan Kaufmann, 1999.
- [PZC⁺03] J. Pei, X. Zhang, M. Cho, H. Wang, and P. S. Yu. Maple: A fast algorithm for maximal pattern-based clustering. In *Proc. 2003 Int. Conf. Data Mining (ICDM'03)*, pp. 259–266, Melbourne, FL, Dec. 2003.
- [QC-J93] J. R. Quinlan and R. M. Cameron-Jones. FOIL: A midterm report. In *Proc. 1993 European Conf. Machine Learning (ECML'93)*, pp. 3–20, Vienna, Austria, 1993.
- [QR89] J. R. Quinlan and R. L. Rivest. Inferring decision trees using the minimum description length principle. *Information and Computation*, 80:227–248, Mar. 1989.
- [Qui86] J. R. Quinlan. Induction of decision trees. *Machine Learning*, 1:81–106, 1986.
- [Qui87] J. R. Quinlan. Simplifying decision trees. *Int. J. Man-Machine Studies*, 27:221–234, 1987.
- [Qui88] J. R. Quinlan. An empirical comparison of genetic and decision-tree classifiers. In *Proc. 1988 Int. Conf. Machine Learning (ICML'88)*, pp. 135–141, Ann Arbor, MI, June 1988.
- [Qui89] J. R. Quinlan. Unknown attribute values in induction. In *Proc. 1989 Int. Conf. Machine Learning (ICML'89)*, pp. 164–168, Ithaca, NY, June 1989.
- [Qui90] J. R. Quinlan. Learning logic definitions from relations. *Machine Learning*, 5:139–166, 1990.
- [Qui93] J. R. Quinlan. *C4.5: Programs for Machine Learning*. Morgan Kaufmann, 1993.
- [Qui96] J. R. Quinlan. Bagging, boosting, and C4.5. In *Proc. 1996 Nat. Conf. Artificial Intelligence (AAAI'96)*, Vol. 1, pp. 725–730, Portland, OR, Aug. 1996.
- [RA87] E. L. Rissland and K. Ashley. HYPO: A case-based system for trade secret law. In *Proc. 1st Int. Conf. Artificial Intelligence and Law*, pp. 60–66, Boston, MA, May 1987.
- [Rab89] L. R. Rabiner. A tutorial on hidden Markov models and selected applications in speech recognition. *Proc. IEEE*, 77:257–286, 1989.
- [RBKK95] S. Russell, J. Binder, D. Koller, and K. Kanazawa. Local learning in probabilistic networks with hidden variables. In *Proc. 1995 Joint Int. Conf. Artificial Intelligence (IJCAI'95)*, pp. 1146–1152, Montreal, Quebec, Canada, Aug. 1995.
- [RC07] R. Ramakrishnan and B.-C. Chen. Exploratory mining in cube space. *Data Mining and Knowledge Discovery*, 15:29–54, 2007.
- [Red92] T. Redman. *Data Quality: Management and Technology*. Bantam Books, 1992.
- [Red01] T. Redman. *Data Quality: The Field Guide*. Digital Press (Elsevier), 2001.
- [RG03] R. Ramakrishnan and J. Gehrke. *Database Management Systems* (3rd ed.). McGraw-Hill, 2003.
- [RGN10] L. De Raedt, T. Guns, and S. Nijssen. Constraint programming for data mining and machine learning. In *Proc. 2010 AAAI Conf. Artificial Intelligence (AAAI'10)*, pp. 1671–1675, Atlanta, GA, July 2010.
- [RH01] V. Raman and J. M. Hellerstein. Potter's wheel: An interactive data cleaning system. In *Proc. 2001 Int. Conf. Very Large Data Bases (VLDB'01)*, pp. 381–390, Rome, Italy, Sept. 2001.
- [RH07] A. Rosenberg and J. Hirschberg. V-measure: A conditional entropy-based external cluster evaluation measure. In *Proc. 2007 Joint Conf. Empirical Methods in Natural Language Processing and Computational Natural Language Learning (EMNLP-CoNLL'07)*, pp. 410–420, Prague, Czech Republic, June 2007.

- [RHS01] J. F. Roddick, K. Hornsby, and M. Spiliopoulou. An updated bibliography of temporal, spatial, and spatio-temporal data mining research. In J. F. Roddick and K. Hornsby (eds.), *TSDM 2000, Lecture Notes in Computer Science 2007*, pp. 147–163. New York: Springer, 2001.
- [RHW86] D. E. Rumelhart, G. E. Hinton, and R. J. Williams. Learning internal representations by error propagation. In D. E. Rumelhart and J. L. McClelland (eds.), *Parallel Distributed Processing*. Cambridge, MA: MIT Press, 1986.
- [Rip96] B. D. Ripley. *Pattern Recognition and Neural Networks*. Cambridge University Press, 1996.
- [RM86] D. E. Rumelhart and J. L. McClelland. *Parallel Distributed Processing*. Cambridge, MA: MIT Press, 1986.
- [RMS98] S. Ramaswamy, S. Mahajan, and A. Silberschatz. On the discovery of interesting patterns in association rules. In *Proc. 1998 Int. Conf. Very Large Data Bases (VLDB'98)*, pp. 368–379, New York, Aug. 1998.
- [RN95] S. Russell and P. Norvig. *Artificial Intelligence: A Modern Approach*. Prentice-Hall, 1995.
- [RNI09] M. Radovanović, A. Nanopoulos, and M. Ivanović. Nearest neighbors in high-dimensional data: The emergence and influence of hubs. In *Proc. 2009 Int. Conf. Machine Learning (ICML'09)*, pp. 865–872, Montreal, Quebec, Canada, June 2009.
- [Ros58] F. Rosenblatt. The perceptron: A probabilistic model for information storage and organization in the brain. *Psychological Rev.*, 65:386–498, 1958.
- [RS89] C. Riesbeck and R. Schank. *Inside Case-Based Reasoning*. Lawrence Erlbaum, 1989.
- [RS97] K. Ross and D. Srivastava. Fast computation of sparse datacubes. In *Proc. 1997 Int. Conf. Very Large Data Bases (VLDB'97)*, pp. 116–125, Athens, Greece, Aug. 1997.
- [RS98] R. Rastogi and K. Shim. Public: A decision tree classifier that integrates building and pruning. In *Proc. 1998 Int. Conf. Very Large Data Bases (VLDB'98)*, pp. 404–415, New York, Aug. 1998.
- [RS01] F. Ramsey and D. Schafer. *The Statistical Sleuth: A Course in Methods of Data Analysis*. Duxbury Press, 2001.
- [RSC98] K. A. Ross, D. Srivastava, and D. Chatziantoniou. Complex aggregation at multiple granularities. In *Proc. Int. Conf. Extending Database Technology (EDBT'98)*, pp. 263–277, Valencia, Spain, Mar. 1998.
- [Rus06] J. C. Russ. *The Image Processing Handbook* (5th ed.). CRC Press, 2006.
- [SA95] R. Srikant and R. Agrawal. Mining generalized association rules. In *Proc. 1995 Int. Conf. Very Large Data Bases (VLDB'95)*, pp. 407–419, Zurich, Switzerland, Sept. 1995.
- [SA96] R. Srikant and R. Agrawal. Mining sequential patterns: Generalizations and performance improvements. In *Proc. 5th Int. Conf. Extending Database Technology (EDBT'96)*, pp. 3–17, Avignon, France, Mar. 1996.
- [SAM96] J. Shafer, R. Agrawal, and M. Mehta. SPRINT: A scalable parallel classifier for data mining. In *Proc. 1996 Int. Conf. Very Large Data Bases (VLDB'96)*, pp. 544–555, Bombay, India, Sept. 1996.
- [SAM98] S. Sarawagi, R. Agrawal, and N. Megiddo. Discovery-driven exploration of OLAP data cubes. In *Proc. Int. Conf. Extending Database Technology (EDBT'98)*, pp. 168–182, Valencia, Spain, Mar. 1998.

- [SBSW99] B. Schölkopf, P. L. Bartlett, A. Smola, and R. Williamson. Shrinking the tube: A new support vector regression algorithm. In M. S. Kearns, S. A. Solla, and D. A. Cohn (eds.), *Advances in Neural Information Processing Systems 11*, pp. 330–336. Cambridge, MA: MIT Press, 1999.
- [SC03] S. Shekhar and S. Chawla. *Spatial Databases: A Tour*. Prentice-Hall, 2003.
- [Sch86] J. C. Schlimmer. Learning and representation change. In *Proc. 1986 Nat. Conf. Artificial Intelligence (AAAI'86)*, pp. 511–515, Philadelphia, PA, 1986.
- [Sch07] S. E. Schaeffer. Graph clustering. *Computer Science Rev.*, 1:27–64, 2007.
- [SCZ98] G. Sheikholeslami, S. Chatterjee, and A. Zhang. WaveCluster: A multi-resolution clustering approach for very large spatial databases. In *Proc. 1998 Int. Conf. Very Large Data Bases (VLDB'98)*, pp. 428–439, New York, Aug. 1998.
- [SD90] J. W. Shavlik and T. G. Dietterich. *Readings in Machine Learning*. Morgan Kaufmann, 1990.
- [SD02] T. Soukup and I. Davidson. *Visual Data Mining: Techniques and Tools for Data Visualization and Mining*. Wiley, 2002.
- [SDJL96] D. Srivastava, S. Dar, H. V. Jagadish, and A. V. Levy. Answering queries with aggregation using views. In *Proc. 1996 Int. Conf. Very Large Data Bases (VLDB'96)*, pp. 318–329, Bombay, India, Sept. 1996.
- [SDN98] A. Shukla, P. M. Deshpande, and J. F. Naughton. Materialized view selection for multidimensional datasets. In *Proc. 1998 Int. Conf. Very Large Data Bases (VLDB'98)*, pp. 488–499, New York, Aug. 1998.
- [SE10] G. Seni and J. F. Elder. *Ensemble Methods in Data Mining: Improving Accuracy Through Combining Predictions*. Morgan and Claypool, 2010.
- [Set10] B. Settles. Active learning literature survey. In *Computer Sciences Technical Report 1648*, University of Wisconsin–Madison, 2010.
- [SF86] J. C. Schlimmer and D. Fisher. A case study of incremental concept induction. In *Proc. 1986 Nat. Conf. Artificial Intelligence (AAAI'86)*, pp. 496–501, Philadelphia, PA, 1986.
- [SFB99] J. Shanmugasundaram, U. M. Fayyad, and P. S. Bradley. Compressed data cubes for OLAP aggregate query approximation on continuous dimensions. In *Proc. 1999 Int. Conf. Knowledge Discovery and Data Mining (KDD'99)*, pp. 223–232, San Diego, CA, Aug. 1999.
- [SG92] P. Smyth and R. M. Goodman. An information theoretic approach to rule induction. *IEEE Trans. Knowledge and Data Engineering*, 4:301–316, 1992.
- [She31] W. A. Shewhart. *Economic Control of Quality of Manufactured Product*. D. Van Nostrand, 1931.
- [Shi99] Y.-S. Shih. Families of splitting criteria for classification trees. *Statistics and Computing*, 9:309–315, 1999.
- [SHK00] N. Stefanovic, J. Han, and K. Koperski. Object-based selective materialization for efficient implementation of spatial data cubes. *IEEE Trans. Knowledge and Data Engineering*, 12:938–958, 2000.
- [Sho97] A. Shoshani. OLAP and statistical databases: Similarities and differences. In *Proc. 16th ACM Symp. Principles of Database Systems*, pp. 185–196, Tucson, AZ, May 1997.
- [Shu88] R. H. Shumway. *Applied Statistical Time Series Analysis*. Prentice-Hall, 1988.

- [SHX04] Z. Shao, J. Han, and D. Xin. MM-Cubing: Computing iceberg cubes by factorizing the lattice space. In *Proc. 2004 Int. Conf. Scientific and Statistical Database Management (SSDBM'04)*, pp. 213–222, Santorini Island, Greece, June 2004.
- [SHZ⁺09] Y. Sun, J. Han, P. Zhao, Z. Yin, H. Cheng, and T. Wu. RankClus: Integrating clustering with ranking for heterogeneous information network analysis. In *Proc. 2009 Int. Conf. Extending Data Base Technology (EDBT'09)*, pp. 565–576, Saint Petersburg, Russia, Mar. 2009.
- [Sil10] F. Silvestri. Mining query logs: Turning search usage data into knowledge. *Foundations and Trends in Information Retrieval*, 4:1–174, 2010.
- [SK08] J. Shieh and E. Keogh. iSAX: Indexing and mining terabyte sized time series. In *Proc. 2008 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'08)*, pp. 623–631, Las Vegas, NV, Aug. 2008.
- [SKS10] A. Silberschatz, H. F. Korth, and S. Sudarshan. *Database System Concepts* (6th ed.). McGraw-Hill, 2010.
- [SLT⁺01] S. Shekhar, C.-T. Lu, X. Tan, S. Chawla, and R. R. Vatsavai. Map cube: A visualization tool for spatial data warehouses. In H. J. Miller and J. Han (eds.), *Geographic Data Mining and Knowledge Discovery*, pp. 73–108. Taylor and Francis, 2001.
- [SM97] J. C. Setubal and J. Meidanis. *Introduction to Computational Molecular Biology*. PWS Publishing Co., 1997.
- [SMT91] J. W. Shavlik, R. J. Mooney, and G. G. Towell. Symbolic and neural learning algorithms: An experimental comparison. *Machine Learning*, 6:111–144, 1991.
- [SN88] K. Saito and R. Nakano. Medical diagnostic expert system based on PDP model. In *Proc. 1988 IEEE Int. Conf. Neural Networks*, pp. 225–262, San Mateo, CA, 1988.
- [SOMZ96] W. Shen, K. Ong, B. Mitbender, and C. Zaniolo. Metaqueries for data mining. In U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy (eds.), *Advances in Knowledge Discovery and Data Mining*, pp. 375–398. AAAI/MIT Press, 1996.
- [SON95] A. Savasere, E. Omiecinski, and S. Navathe. An efficient algorithm for mining association rules in large databases. In *Proc. 1995 Int. Conf. Very Large Data Bases (VLDB'95)*, pp. 432–443, Zurich, Switzerland, Sept. 1995.
- [SON98] A. Savasere, E. Omiecinski, and S. Navathe. Mining for strong negative associations in a large database of customer transactions. In *Proc. 1998 Int. Conf. Data Engineering (ICDE'98)*, pp. 494–502, Orlando, FL, Feb. 1998.
- [SR81] R. Sokal and F. Rohlf. *Biometry*. Freeman, 1981.
- [SR92] A. Skowron and C. Rauszer. The discernibility matrices and functions in information systems. In R. Slowinski (ed.), *Intelligent Decision Support, Handbook of Applications and Advances of the Rough Set Theory*, pp. 331–362. Kluwer Academic, 1992.
- [SS88] W. Siedlecki and J. Sklansky. On automatic feature selection. *Int. J. Pattern Recognition and Artificial Intelligence*, 2:197–220, 1988.
- [SS94] S. Sarawagi and M. Stonebraker. Efficient organization of large multidimensional arrays. In *Proc. 1994 Int. Conf. Data Engineering (ICDE'94)*, pp. 328–336, Houston, TX, Feb. 1994.
- [SS01] G. Sathe and S. Sarawagi. Intelligent rollups in multidimensional OLAP data. In *Proc. 2001 Int. Conf. Very Large Data Bases (VLDB'01)*, pp. 531–540, Rome, Italy, Sept. 2001.

- [SS05] R. H. Shumway and D. S. Stoffer. *Time Series Analysis and Its Applications*. New York: Springer, 2005.
- [ST96] A. Silberschatz and A. Tuzhilin. What makes patterns interesting in knowledge discovery systems. *IEEE Trans. Knowledge and Data Engineering*, 8:970–974, Dec. 1996.
- [STA98] S. Sarawagi, S. Thomas, and R. Agrawal. Integrating association rule mining with relational database systems: Alternatives and implications. In *Proc. 1998 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'98)*, pp. 343–354, Seattle, WA, June 1998.
- [STH⁺10] Y. Sun, J. Tang, J. Han, M. Gupta, and B. Zhao. Community evolution detection in dynamic heterogeneous information networks. In *Proc. 2010 KDD Workshop Mining and Learning with Graphs (MLG'10)*, Washington, DC, July 2010.
- [Ste72] W. Stefansky. Rejecting outliers in factorial designs. *Technometrics*, 14:469–479, 1972.
- [Sto74] M. Stone. Cross-validators choice and assessment of statistical predictions. *J. Royal Statistical Society*, 36:111–147, 1974.
- [SVA97] R. Srikant, Q. Vu, and R. Agrawal. Mining association rules with item constraints. In *Proc. 1997 Int. Conf. Knowledge Discovery and Data Mining (KDD'97)*, pp. 67–73, Newport Beach, CA, Aug. 1997.
- [SW49] C. E. Shannon and W. Weaver. *The Mathematical Theory of Communication*. University of Illinois Press, 1949.
- [Swe88] J. Swets. Measuring the accuracy of diagnostic systems. *Science*, 240:1285–1293, 1988.
- [Swi98] R. Swiniarski. Rough sets and principal component analysis and their applications in feature extraction and selection, data model building and classification. In S. K. Pal and A. Skowron (eds.), *Rough Fuzzy Hybridization: A New Trend in Decision-Making*, Springer Verlag, Singapore, 1999.
- [SWJR07] X. Song, M. Wu, C. Jermaine, and S. Ranka. Conditional anomaly detection. *IEEE Trans. on Knowledge and Data Engineering*, 19(5):631–645, 2007.
- [SZ04] D. Shasha and Y. Zhu. *High Performance Discovery in Time Series: Techniques and Case Studies*. New York: Springer, 2004.
- [TD02] D. M. J. Tax and R. P. W. Duin. Using two-class classifiers for multiclass classification. In *Proc. 16th Intl. Conf. Pattern Recognition (ICPR'2002)*, pp. 124–127, Montreal, Quebec, Canada, 2002.
- [TFPL04] Y. Tao, C. Faloutsos, D. Papadias, and B. Liu. Prediction and indexing of moving objects with unknown motion patterns. In *Proc. 2004 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'04)*, pp. 611–622, Paris, France, June 2004.
- [TG01] I. Tsoukatos and D. Gunopulos. Efficient mining of spatiotemporal patterns. In *Proc. 2001 Int. Symp. Spatial and Temporal Databases (SSTD'01)*, pp. 425–442, Redondo Beach, CA, July 2001.
- [THH01] A. K. H. Tung, J. Hou, and J. Han. Spatial clustering in the presence of obstacles. In *Proc. 2001 Int. Conf. Data Engineering (ICDE'01)*, pp. 359–367, Heidelberg, Germany, Apr. 2001.
- [THLN01] A. K. H. Tung, J. Han, L. V. S. Lakshmanan, and R. T. Ng. Constraint-based clustering in large databases. In *Proc. 2001 Int. Conf. Database Theory (ICDT'01)*, pp. 405–419, London, Jan. 2001.
- [THP08] Y. Tian, R. A. Hankins, and J. M. Patel. Efficient aggregation for graph summarization. In *Proc. 2008 ACM SIGMOD Int. Conf. Management of Data (SIGMOD'08)*, pp. 567–580, Vancouver, British Columbia, Canada, June 2008.

- [Thu04] B. Thuraisingham. Data mining for counterterrorism. In H. Kargupta, A. Joshi, K. Sivakumar, and Y. Yesha (eds.), *Data Mining: Next Generation Challenges and Future Directions*, pp. 157–183. AAAI/MIT Press, 2004.
- [TK08] S. Theodoridis and K. Koutroumbas. *Pattern Recognition* (4th ed.) Academic Press, 2008.
- [TKS02] P.-N. Tan, V. Kumar, and J. Srivastava. Selecting the right interestingness measure for association patterns. In *Proc. 2002 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'02)*, pp. 32–41, Edmonton, Alberta, Canada, July 2002.
- [TLZN08] L. Tang, H. Liu, J. Zhang, and Z. Nazeri. Community evolution in dynamic multi-mode networks. In *Proc. 2008 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'08)*, pp. 677–685, Las Vegas, NV, Aug. 2008.
- [Toi96] H. Toivonen. Sampling large databases for association rules. In *Proc. 1996 Int. Conf. Very Large Data Bases (VLDB'96)*, pp. 134–145, Bombay, India, Sept. 1996.
- [TS93] G. G. Towell and J. W. Shavlik. Extracting refined rules from knowledge-based neural networks. *Machine Learning*, 13:71–101, Oct. 1993.
- [TSK05] P. N. Tan, M. Steinbach, and V. Kumar. *Introduction to Data Mining*. Boston: Addison-Wesley, 2005.
- [TSS04] A. Tanay, R. Sharan, and R. Shamir. Biclustering algorithms: A survey. In S. Aluru (ed.), *Handbook of Computational Molecular Biology*, pp. 26:1–26:17. London: Chapman & Hall, 2004.
- [Tuf83] E. R. Tufte. *The Visual Display of Quantitative Information*. Graphics Press, 1983.
- [Tuf90] E. R. Tufte. *Envisioning Information*. Graphics Press, 1990.
- [Tuf97] E. R. Tufte. *Visual Explanations: Images and Quantities, Evidence and Narrative*. Graphics Press, 1997.
- [Tuf01] E. R. Tufte. *The Visual Display of Quantitative Information* (2nd ed.). Graphics Press, 2001.
- [TXZ06] Y. Tao, X. Xiao, and S. Zhou. Mining distance-based outliers from large databases in any metric space. In *Proc. 2006 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'06)*, pp. 394–403, Philadelphia, PA, Aug. 2006.
- [UBC97] P. E. Utgoff, N. C. Berkman, and J. A. Clouse. Decision tree induction based on efficient tree restructuring. *Machine Learning*, 29:5–44, 1997.
- [UFS91] R. Uthurusamy, U. M. Fayyad, and S. Spangler. Learning useful rules from inconclusive data. In G. Piatetsky-Shapiro and W. J. Frawley (eds.), *Knowledge Discovery in Databases*, pp. 141–157. AAAI/MIT Press, 1991.
- [Utg88] P. E. Utgoff. An incremental ID3. In *Proc. Fifth Int. Conf. Machine Learning (ICML'88)*, pp. 107–120, San Mateo, CA, 1988.
- [Val87] P. Valduriez. Join indices. *ACM Trans. Database Systems*, 12:218–246, 1987.
- [Vap95] V. N. Vapnik. *The Nature of Statistical Learning Theory*. Springer Verlag, 1995.
- [Vap98] V. N. Vapnik. *Statistical Learning Theory*. John Wiley & Sons, 1998.
- [VC71] V. N. Vapnik and A. Y. Chervonenkis. On the uniform convergence of relative frequencies of events to their probabilities. *Theory of Probability and Its Applications*, 16:264–280, 1971.
- [VC03] J. Vaidya and C. Clifton. Privacy-preserving k -means clustering over vertically partitioned data. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, Washington, DC, Aug 2003.

- [VC06] M. Vuk and T. Curk. ROC curve, lift chart and calibration plot. *Metodološki zvezki*, 3:89–108, 2006.
- [VCZ10] J. Vaidya, C. W. Clifton, and Y. M. Zhu. *Privacy Preserving Data Mining*. New York: Springer, 2010.
- [VGK02] M. Vlachos, D. Gunopulos, and G. Kollios. Discovering similar multidimensional trajectories. In *Proc. 2002 Int. Conf. Data Engineering (ICDE'02)*, pp. 673–684, San Fransisco, CA, Apr. 2002.
- [VMZ06] A. Veloso, W. Meira, and M. Zaki. Lazy associative classificaiton. In *Proc. 2006 Int. Conf. Data Mining (ICDM'06)*, pp. 645–654, Hong Kong, China, 2006.
- [vR90] C. J. van Rijsbergen. *Information Retrieval*. Butterworth, 1990.
- [VWI98] J. S. Vitter, M. Wang, and B. R. Iyer. Data cube approximation and histograms via wavelets. In *Proc. 1998 Int. Conf. Information and Knowledge Management (CIKM'98)*, pp. 96–104, Washington, DC, Nov. 1998.
- [Wat95] M. S. Waterman. *Introduction to Computational Biology: Maps, Sequences, and Genomes (Interdisciplinary Statistics)*. CRC Press, 1995.
- [Wat03] D. J. Watts. *Six Degrees: The Science of a Connected Age*. W. W. Norton & Company, 2003.
- [WB98] C. Westphal and T. Blaxton. *Data Mining Solutions: Methods and Tools for Solving Real-World Problems*. John Wiley & Sons, 1998.
- [WCH10] T. Wu, Y. Chen, and J. Han. Re-examination of interestingness measures in pattern mining: A unified framework. *Data Mining and Knowledge Discovery*, 21(3):371–397, 2010.
- [WCRS01] K. Wagstaff, C. Cardie, S. Rogers, and S. Schrödl. Constrained k -means clustering with background knowledge. In *Proc. 2001 Int. Conf. Machine Learning (ICML'01)*, pp. 577–584, Williamstown, MA, June 2001.
- [Wei04] G. M. Weiss. Mining with rarity: A unifying framework. *SIGKDD Explorations*, 6:7–19, 2004.
- [WF94] S. Wasserman and K. Faust. *Social Network Analysis: Methods and Applications*. Cambridge University Press, 1994.
- [WF05] I. H. Witten and E. Frank. *Data Mining: Practical Machine Learning Tools and Techniques* (2nd ed.). Morgan Kaufmann, 2005.
- [WFH11] I. H. Witten, E. Frank, and M. A. Hall. *Data Mining: Practical Machine Learning Tools and Techniques with Java Implementations* (3rd ed.). Boston: Morgan Kaufmann, 2011.
- [WPHY03] H. Wang, W. Fan, P. S. Yu, and J. Han. Mining concept-drifting data streams using ensemble classifiers. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, pp. 226–235, Washington, DC, Aug. 2003.
- [WHH00] K. Wang, Y. He, and J. Han. Mining frequent itemsets using support constraints. In *Proc. 2000 Int. Conf. Very Large Data Bases (VLDB'00)*, pp. 43–52, Cairo, Egypt, Sept. 2000.
- [WHJ⁺10] C. Wang, J. Han, Y. Jia, J. Tang, D. Zhang, Y. Yu, and J. Guo. Mining advisor-advisee relationships from research publication networks. In *Proc. 2010 ACM SIGKDD Conf. Knowledge Discovery and Data Mining (KDD'10)*, Washington, DC, July 2010.
- [WHLT05] J. Wang, J. Han, Y. Lu, and P. Tzvetkov. TFP: An efficient algorithm for mining top- k frequent closed itemsets. *IEEE Trans. Knowledge and Data Engineering*, 17:652–664, 2005.

- [WHP03] J. Wang, J. Han, and J. Pei. CLOSET+: Searching for the best strategies for mining frequent closed itemsets. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, pp. 236–245, Washington, DC, Aug. 2003.
- [WI98] S. M. Weiss and N. Indurkha. *Predictive Data Mining*. Morgan Kaufmann, 1998.
- [Wid95] J. Widom. Research problems in data warehousing. In *Proc. 4th Int. Conf. Information and Knowledge Management*, pp. 25–30, Baltimore, MD, Nov. 1995.
- [WIZD04] S. Weiss, N. Indurkha, T. Zhang, and F. Damerou. *Text Mining: Predictive Methods for Analyzing Unstructured Information*. New York: Springer, 2004.
- [WK91] S. M. Weiss and C. A. Kulikowski. *Computer Systems That Learn: Classification and Prediction Methods from Statistics, Neural Nets, Machine Learning, and Expert Systems*. Morgan Kaufmann, 1991.
- [WK05] J. Wang and G. Karypis. HARMONY: Efficiently mining the best rules for classification. In *Proc. 2005 SIAM Conf. Data Mining (SDM'05)*, pp. 205–216, Newport Beach, CA, Apr. 2005.
- [WLFY02] W. Wang, H. Lu, J. Feng, and J. X. Yu. Condensed cube: An effective approach to reducing data cube size. In *Proc. 2002 Int. Conf. Data Engineering (ICDE'02)*, pp. 155–165, San Francisco, CA, Apr. 2002.
- [WRL94] B. Widrow, D. E. Rumelhart, and M. A. Lehr. Neural networks: Applications in industry, business and science. *Communications of the ACM*, 37:93–105, 1994.
- [WSF95] R. Wang, V. Storey, and C. Firth. A framework for analysis of data quality research. *IEEE Trans. Knowledge and Data Engineering*, 7:623–640, 1995.
- [Wu83] C. F. J. Wu. On the convergence properties of the EM algorithm. *Ann. Statistics*, 11:95–103, 1983.
- [WW96] Y. Wand and R. Wang. Anchoring data quality dimensions in ontological foundations. *Communications of the ACM*, 39:86–95, 1996.
- [WWYY02] H. Wang, W. Wang, J. Yang, and P. S. Yu. Clustering by pattern similarity in large data sets. In *Proc. 2002 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'02)*, pp. 418–427, Madison, WI, June 2002.
- [WXH08] T. Wu, D. Xin, and J. Han. ARCube: Supporting ranking aggregate queries in partially materialized data cubes. In *Proc. 2008 ACM SIGMOD Int. Conf. Management of Data (SIGMOD'08)*, pp. 79–92, Vancouver, British Columbia, Canada, June 2008.
- [WXMH09] T. Wu, D. Xin, Q. Mei, and J. Han. Promotion analysis in multi-dimensional space. In *Proc. 2009 Int. Conf. Very Large Data Bases (VLDB'09)*, 2(1):109–120, Lyon, France, Aug. 2009.
- [WYM97] W. Wang, J. Yang, and R. Muntz. STING: A statistical information grid approach to spatial data mining. In *Proc. 1997 Int. Conf. Very Large Data Bases (VLDB'97)*, pp. 186–195, Athens, Greece, Aug. 1997.
- [XCYH06] D. Xin, H. Cheng, X. Yan, and J. Han. Extracting redundancy-aware top- k patterns. In *Proc. 2006 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'06)*, pp. 444–453, Philadelphia, PA, Aug. 2006.
- [XHCL06] D. Xin, J. Han, H. Cheng, and X. Li. Answering top- k queries with multi-dimensional selections: The ranking cube approach. In *Proc. 2006 Int. Conf. Very Large Data Bases (VLDB'06)*, pp. 463–475, Seoul, Korea, Sept. 2006.

- [XHLW03] D. Xin, J. Han, X. Li, and B. W. Wah. Star-cubing: Computing iceberg cubes by top-down and bottom-up integration. In *Proc. 2003 Int. Conf. Very Large Data Bases (VLDB'03)*, pp. 476–487, Berlin, Germany, Sept. 2003.
- [XHSL06] D. Xin, J. Han, Z. Shao, and H. Liu. C-cubing: Efficient computation of closed cubes by aggregation-based checking. In *Proc. 2006 Int. Conf. Data Engineering (ICDE'06)*, p. 4, Atlanta, GA, Apr. 2006.
- [XHYC05] D. Xin, J. Han, X. Yan, and H. Cheng. Mining compressed frequent-pattern sets. In *Proc. 2005 Int. Conf. Very Large Data Bases (VLDB'05)*, pp. 709–720, Trondheim, Norway, Aug. 2005.
- [XOJ00] Y. Xiang, K. G. Olesen, and F. V. Jensen. Practical issues in modeling large diagnostic systems with multiply sectioned Bayesian networks. *Intl. J. Pattern Recognition and Artificial Intelligence (IJPRAI)*, 14:59–71, 2000.
- [XPK10] Z. Xing, J. Pei, and E. Keogh. A brief survey on sequence classification. *SIGKDD Explorations*, 12:40–48, 2010.
- [XSH⁺04] H. Xiong, S. Shekhar, Y. Huang, V. Kumar, X. Ma, and J. S. Yoo. A framework for discovering co-location patterns in data sets with extended spatial objects. In *Proc. 2004 SIAM Int. Conf. Data Mining (SDM'04)*, Lake Buena Vista, FL, Apr. 2004.
- [XYFS07] X. Xu, N. Yuruk, Z. Feng, and T. A. J. Schweiger. SCAN: A structural clustering algorithm for networks. In *Proc. 2007 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'07)*, pp. 824–833, San Jose, CA, Aug. 2007.
- [XZYL08] T. Xu, Z. M. Zhang, P. S. Yu, and B. Long. Evolutionary clustering by hierarchical Dirichlet process with hidden Markov state. In *Proc. 2008 Int. Conf. Data Mining (ICDM'08)*, pp. 658–667, Pisa, Italy, Dec. 2008.
- [YC01] N. Ye and Q. Chen. An anomaly detection technique based on a chi-square statistic for detecting intrusions into information systems. *Quality and Reliability Engineering International*, 17:105–112, 2001.
- [YCHX05] X. Yan, H. Cheng, J. Han, and D. Xin. Summarizing itemset patterns: A profile-based approach. In *Proc. 2005 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'05)*, pp. 314–323, Chicago, IL, Aug. 2005.
- [YFB01] C. Yang, U. Fayyad, and P. S. Bradley. Efficient discovery of error-tolerant frequent itemsets in high dimensions. In *Proc. 2001 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'01)*, pp. 194–203, San Francisco, CA, Aug. 2001.
- [YFM⁺97] K. Yoda, T. Fukuda, Y. Morimoto, S. Morishita, and T. Tokuyama. Computing optimized rectilinear regions for association rules. In *Proc. 1997 Int. Conf. Knowledge Discovery and Data Mining (KDD'97)*, pp. 96–103, Newport Beach, CA, Aug. 1997.
- [YH02] X. Yan and J. Han. gSpan: Graph-based substructure pattern mining. In *Proc. 2002 Int. Conf. Data Mining (ICDM'02)*, pp. 721–724, Maebashi, Japan, Dec. 2002.
- [YH03a] X. Yan and J. Han. CloseGraph: Mining closed frequent graph patterns. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, pp. 286–295, Washington, DC, Aug. 2003.
- [YH03b] X. Yin and J. Han. CPAR: Classification based on predictive association rules. In *Proc. 2003 SIAM Int. Conf. Data Mining (SDM'03)*, pp. 331–335, San Francisco, CA, May 2003.

- [YHA03] X. Yan, J. Han, and R. Afshar. CloSpan: Mining closed sequential patterns in large datasets. In *Proc. 2003 SIAM Int. Conf. Data Mining (SDM'03)*, pp. 166–177, San Francisco, CA, May 2003.
- [YHF10] P. S. Yu, J. Han, and C. Faloutsos. *Link Mining: Models, Algorithms and Applications*. New York: Springer, 2010.
- [YHY05] X. Yin, J. Han, and P. S. Yu. Cross-relational clustering with user's guidance. In *Proc. 2005 ACM SIGKDD Int. Conf. Knowledge Discovery in Databases (KDD'05)*, pp. 344–353, Chicago, IL, Aug. 2005.
- [YHY07] X. Yin, J. Han, and P. S. Yu. Object distinction: Distinguishing objects with identical names by link analysis. In *Proc. 2007 Int. Conf. Data Engineering (ICDE'07)*, Istanbul, Turkey, Apr. 2007.
- [YHY08] X. Yin, J. Han, and P. S. Yu. Truth discovery with multiple conflicting information providers on the Web. *IEEE Trans. Knowledge and Data Engineering*, 20:796–808, 2008.
- [YHYY04] X. Yin, J. Han, J. Yang, and P. S. Yu. CrossMine: Efficient classification across multiple database relations. In *Proc. 2004 Int. Conf. Data Engineering (ICDE'04)*, pp. 399–410, Boston, MA, Mar. 2004.
- [YK09] L. Ye and E. Keogh. Time series shapelets: A new primitive for data mining. In *Proc. 2009 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'09)*, pp. 947–956, Paris, France, June 2009.
- [YWY07] J. Yuan, Y. Wu, and M. Yang. Discovery of collocation patterns: From visual words to visual phrases. In *Proc. IEEE Conf. Computer Vision and Pattern Recognition (CVPR'07)*, pp. 1–8, Minneapolis, MN, June 2007.
- [YYH03] H. Yu, J. Yang, and J. Han. Classifying large data sets using SVM with hierarchical clusters. In *Proc. 2003 ACM SIGKDD Int. Conf. Knowledge Discovery and Data Mining (KDD'03)*, pp. 306–315, Washington, DC, Aug. 2003.
- [YYH05] X. Yan, P. S. Yu, and J. Han. Graph indexing based on discriminative frequent structure analysis. *ACM Trans. Database Systems*, 30:960–993, 2005.
- [YZ94] R. R. Yager and L. A. Zadeh. *Fuzzy Sets, Neural Networks and Soft Computing*. Van Nostrand Reinhold, 1994.
- [ZYZH06] X. Yan, F. Zhu, P. S. Yu, and J. Han. Feature-based substructure similarity search. *ACM Trans. Database Systems*, 31:1418–1453, 2006.
- [Zad65] L. A. Zadeh. Fuzzy sets. *Information and Control*, 8:338–353, 1965.
- [Zad83] L. Zadeh. Commonsense knowledge representation based on fuzzy logic. *Computer*, 16:61–65, 1983.
- [Zak00] M. J. Zaki. Scalable algorithms for association mining. *IEEE Trans. Knowledge and Data Engineering*, 12:372–390, 2000.
- [Zak01] M. Zaki. SPADE: An efficient algorithm for mining frequent sequences. *Machine Learning*, 40:31–60, 2001.
- [ZDN97] Y. Zhao, P. M. Deshpande, and J. F. Naughton. An array-based algorithm for simultaneous multidimensional aggregates. In *Proc. 1997 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'97)*, pp. 159–170, Tucson, AZ, May 1997.
- [ZH02] M. J. Zaki and C. J. Hsiao. CHARM: An efficient algorithm for closed itemset mining. In *Proc. 2002 SIAM Int. Conf. Data Mining (SDM'02)*, pp. 457–473, Arlington, VA, Apr. 2002.

- [Zha08] C. Zhai. *Statistical Language Models for Information Retrieval*. Morgan and Claypool, 2008.
- [ZHL⁺98] O. R. Zaïane, J. Han, Z. N. Li, J. Y. Chiang, and S. Chee. MultiMedia-Miner: A system prototype for multimedia data mining. In *Proc. 1998 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'98)*, pp. 581–583, Seattle, WA, June 1998.
- [Zhu05] X. Zhu. Semi-supervised learning literature survey. In *Computer Sciences Technical Report 1530*, University of Wisconsin–Madison, 2005.
- [ZH00] O. R. Zaïane, J. Han, and H. Zhu. Mining recurrent items in multimedia with progressive resolution refinement. In *Proc. 2000 Int. Conf. Data Engineering (ICDE'00)*, pp. 461–470, San Diego, CA, Feb. 2000.
- [Zia91] W. Ziarko. The discovery, analysis, and representation of data dependencies in databases. In G. Piatetsky-Shapiro and W. J. Frawley (eds.), *Knowledge Discovery in Databases*, pp. 195–209. AAAI Press, 1991.
- [ZL06] Z.-H. Zhou and X.-Y. Liu. Training cost-sensitive neural networks with methods addressing the class imbalance problem. *IEEE Trans. Knowledge and Data Engineering*, 18:63–77, 2006.
- [ZPOL97] M. J. Zaki, S. Parthasarathy, M. Ogihara, and W. Li. Parallel algorithm for discovery of association rules. *Data Mining and Knowledge Discovery*, 1:343–374, 1997.
- [ZRL96] T. Zhang, R. Ramakrishnan, and M. Livny. BIRCH: An efficient data clustering method for very large databases. In *Proc. 1996 ACM-SIGMOD Int. Conf. Management of Data (SIGMOD'96)*, pp. 103–114, Montreal, Quebec, Canada, June 1996.
- [ZS02] N. Zapkowicz and S. Stephen. The class imbalance program: A systematic study. *Intelligence Data Analysis*, 6:429–450, 2002.
- [ZYH⁺07] F. Zhu, X. Yan, J. Han, P. S. Yu, and H. Cheng. Mining colossal frequent patterns by core pattern fusion. In *Proc. 2007 Int. Conf. Data Engineering (ICDE'07)*, pp. 706–715, Istanbul, Turkey, Apr. 2007.
- [ZYHY07] F. Zhu, X. Yan, J. Han, and P. S. Yu. gPrune: A constraint pushing framework for graph pattern mining. In *Proc. 2007 Pacific-Asia Conf. Knowledge Discovery and Data Mining (PAKDD'07)*, pp. 388–400, Nanjing, China, May 2007.
- [ZZ09] Z. Zhang and R. Zhang. *Multimedia Data Mining: A Systematic Introduction to Concepts and Theory*. Chapman & Hall, 2009.
- [ZZH09] D. Zhang, C. Zhai, and J. Han. Topic cube: Topic modeling for OLAP on multi-dimensional text databases. In *Proc. 2009 SIAM Int. Conf. Data Mining (SDM'09)*, pp. 1123–1134, Sparks, NV, Apr. 2009.