
References

- Abudawood, T. (2011).** Multi-class subgroup discovery: Heuristics, algorithms and predictiveness. Ph.D. thesis, University of Bristol, Department of Computer Science, Faculty of Engineering. 357
- Abudawood, T. and Flach, P.A. (2009).** Evaluation measures for multi-class subgroup discovery. In W.L. Buntine, M. Grobelnik, D. Mladenić and J. Shawe-Taylor (eds.), *Proceedings of the European Conference on Machine Learning and Knowledge Discovery in Databases (ECML-PKDD 2009), Part I, LNCS*, volume 5781, pp. 35–50. Springer. 193
- Agrawal, R., Imielinski, T. and Swami, A.N. (1993).** Mining association rules between sets of items in large databases. In P. Buneman and S. Jajodia (eds.), *Proceedings of the ACM International Conference on Management of Data (SIGMOD 1993)*, pp. 207–216. ACM Press. 103
- Agrawal, R., Mannila, H., Srikant, R., Toivonen, H. and Verkamo, A.I. (1996).** Fast discovery of association rules. In *Advances in Knowledge Discovery and Data Mining*, pp. 307–328. AAAI/MIT Press. 193
- Allwein, E.L., Schapire, R.E. and Singer, Y. (2000).** Reducing multiclass to binary: A unifying approach for margin classifiers. In P. Langley (ed.), *Proceedings of the Seventeenth International Conference on Machine Learning (ICML 2000)*, pp. 9–16. Morgan Kaufmann. 102

- Amit, Y. and Geman, D. (1997).** Shape quantization and recognition with randomized trees. *Neural Computation* 9(7):1545–1588. 341
- Angluin, D., Frazier, M. and Pitt, L. (1992).** Learning conjunctions of Horn clauses. *Machine Learning* 9:147–164. 128
- Bakir, G., Hofmann, T., Schölkopf, B., Smola, A.J., Taskar, B. and Vishwanathan, S.V.N. (2007).** *Predicting Structured Data*. MIT Press. 361
- Banerji, R.B. (1980).** *Artificial Intelligence: A Theoretical Approach*. Elsevier Science. 127
- Bengio, Y. (2009).** Learning deep architectures for AI. *Foundations and Trends in Machine Learning* 2(1):1–127. 361
- Best, M.J. and Chakravarti, N. (1990).** Active set algorithms for isotonic regression; a unifying framework. *Mathematical Programming* 47(1):425–439. 80, 229
- Blockeel, H. (2010a).** Hypothesis language. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 507–511. Springer. 127
- Blockeel, H. (2010b).** Hypothesis space. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 511–513. Springer. 127
- Blockeel, H., De Raedt, L. and Ramon, J. (1998).** Top-down induction of clustering trees. In J.W. Shavlik (ed.), *Proceedings of the Fifteenth International Conference on Machine Learning (ICML 1998)*, pp. 55–63. Morgan Kaufmann. 103, 156
- Blumer, A., Ehrenfeucht, A., Haussler, D. and Warmuth, M.K. (1989).** Learnability and the Vapnik-Chervonenkis dimension. *Journal of the ACM* 36(4):929–965. 128
- Boser, B.E., Guyon, I. and Vapnik, V. (1992).** A training algorithm for optimal margin classifiers. In *Proceedings of the International Conference on Computational Learning Theory (COLT 1992)*, pp. 144–152. 229
- Bouckaert, R. and Frank, E. (2004).** Evaluating the replicability of significance tests for comparing learning algorithms. In H. Dai, R. Srikant and C. Zhang (eds.), *Advances in Knowledge Discovery and Data Mining, LNCS*, volume 3056, pp. 3–12. Springer. 358
- Boullé, M. (2004).** Khiops: A statistical discretization method of continuous attributes. *Machine Learning* 55(1):53–69. 328
- Boullé, M. (2006).** MODL: A Bayes optimal discretization method for continuous attributes. *Machine Learning* 65(1):131–165. 328

- Bourke, C., Deng, K., Scott, S.D., Schapire, R.E. and Vinodchandran, N.V. (2008).** On reoptimizing multi-class classifiers. *Machine Learning* 71(2-3):219–242. 102
- Brazdil, P., Giraud-Carrier, C.G., Soares, C. and Vilalta, R. (2009).** *Metalearning – Applications to Data Mining*. Springer. 342
- Brazdil, P., Vilalta, R., Giraud-Carrier, C.G. and Soares, C. (2010).** Metalearning. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 662–666. Springer. 342
- Breiman, L. (1996a).** Bagging predictors. *Machine Learning* 24(2):123–140. 341
- Breiman, L. (1996b).** Stacked regressions. *Machine Learning* 24(1):49–64. 342
- Breiman, L. (2001).** Random forests. *Machine Learning* 45(1):5–32. 341
- Breiman, L., Friedman, J.H., Olshen, R.A. and Stone, C.J. (1984).** *Classification and Regression Trees*. Wadsworth. 156
- Brier, G.W. (1950).** Verification of forecasts expressed in terms of probability. *Monthly Weather Review* 78(1):1–3. 80
- Brown, G. (2010).** Ensemble learning. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 312–320. Springer. 341
- Bruner, J.S., Goodnow, J.J. and Austin, G.A. (1956).** *A Study of Thinking*. Science Editions. 2nd edn 1986. 127
- Cesa-Bianchi, N. and Lugosi, G. (2006).** *Prediction, Learning, and Games*. Cambridge University Press. 361
- Cestnik, B. (1990).** Estimating probabilities: A crucial task in machine learning. In *Proceedings of the European Conference on Artificial Intelligence (ECAI 1990)*, pp. 147–149. 296
- Clark, P. and Boswell, R. (1991).** Rule induction with CN2: Some recent improvements. In Y. Kodratoff (ed.), *Proceedings of the European Working Session on Learning (EWSL 1991)*, LNCS, volume 482, pp. 151–163. Springer. 192
- Clark, P. and Niblett, T. (1989).** The CN2 induction algorithm. *Machine Learning* 3:261–283. 192
- Cohen, W.W. (1995).** Fast effective rule induction. In A. Prieditis and S.J. Russell (eds.), *Proceedings of the Twelfth International Conference on Machine Learning (ICML 1995)*, pp. 115–123. Morgan Kaufmann. 192, 341

- Cohen, W.W. and Singer, Y. (1999).** A simple, fast, and effictive rule learner. In J. Hendler and D. Subramanian (eds.), *Proceedings of the Sixteenth National Conference on Artificial Intelligence (AAAI 1999)*, pp. 335–342. AAAI Press / MIT Press. 341
- Cohn, D. (2010).** Active learning. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 10–14. Springer. 128
- Cortes, C. and Vapnik, V. (1995).** Support-vector networks. *Machine Learning* 20(3):273–297. 229
- Cover, T. and Hart, P. (1967).** Nearest neighbor pattern classification. *IEEE Transactions on Information Theory* 13(1):21–27. 260
- Cristianini, N. and Shawe-Taylor, J. (2000).** *An Introduction to Support Vector Machines*. Cambridge University Press. 229
- Dasgupta, S. (2010).** Active learning theory. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 14–19. Springer. 128
- Davis, J. and Goadrich, M. (2006).** The relationship between precision-recall and ROC curves. In W.W. Cohen and A. Moore (eds.), *Proceedings of the Twenty-Third International Conference on Machine Learning (ICML 2006)*, pp. 233–240. ACM Press. 358
- De Raedt, L. (1997).** Logical settings for concept-learning. *Artificial Intelligence* 95(1):187–201. 128
- De Raedt, L. (2008).** *Logical and Relational Learning*. Springer. 193
- De Raedt, L. (2010).** Logic of generality. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 624–631. Springer. 128
- De Raedt, L. and Kersting, K. (2010).** Statistical relational learning. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 916–924. Springer. 193
- Dempster, A.P., Laird, N.M. and Rubin, D.B. (1977).** Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society, Series B (Methodological)* pp. 1–38. 296
- Demšar, J. (2008).** On the appropriateness of statistical tests in machine learning. In *Proceedings of the ICML'08 Workshop on Evaluation Methods for Machine Learning*. 359
- Demšar, J. (2006).** Statistical comparisons of classifiers over multiple data sets. *Journal of Machine Learning Research* 7:1–30. 359

- Dietterich, T.G.** (1998). Approximate statistical tests for comparing supervised classification learning algorithms. *Neural Computation* 10(7):1895–1923. 358
- Dietterich, T.G. and Bakiri, G.** (1995). Solving multiclass learning problems via error-correcting output codes. *Journal of Artificial Intelligence Research* 2:263–286. 102
- Dietterich, T.G., Kearns, M.J. and Mansour, Y.** (1996). Applying the weak learning framework to understand and improve c4.5. In *Proceedings of the Thirteenth International Conference on Machine Learning*, pp. 96–104. 156
- Ding, C.H.Q. and He, X.** (2004). K-means clustering via principal component analysis. In C.E. Brodley (ed.), *Proceedings of the Twenty-First International Conference on Machine Learning (ICML 2004)*. ACM Press. 329
- Domingos, P. and Pazzani, M.** (1997). On the optimality of the simple Bayesian classifier under zero-one loss. *Machine Learning* 29(2):103–130. 296
- Donoho, S.K. and Rendell, L.A.** (1995). Rerrepresenting and restructuring domain theories: A constructive induction approach. *Journal of Artificial Intelligence Research* 2:411–446. 328
- Drummond, C.** (2006). Machine learning as an experimental science (revisited). In *Proceedings of the AAAI'06 Workshop on Evaluation Methods for Machine Learning*. 359
- Drummond, C. and Holte, R.C.** (2000). Exploiting the cost (in)sensitivity of decision tree splitting criteria. In P. Langley (ed.), *Proceedings of the Seventeenth International Conference on Machine Learning (ICML 2000)*, pp. 239–246. Morgan Kaufmann. 156
- Egan, J.P.** (1975). *Signal Detection Theory and ROC Analysis*. Academic Press. 80
- Fawcett, T.** (2006). An introduction to ROC analysis. *Pattern Recognition Letters* 27(8):861–874. 80, 358
- Fawcett, T. and Niculescu-Mizil, A.** (2007). PAV and the ROC convex hull. *Machine Learning* 68(1):97–106. 80, 229
- Fayyad, U.M. and Irani, K.B.** (1993). Multi-interval discretization of continuous-valued attributes for classification learning. In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI 1993)*, pp. 1022–1029. 328
- Ferri, C., Flach, P.A. and Hernández-Orallo, J.** (2002). Learning decision trees using the area under the ROC curve. In C. Sammut and A.G. Hoffmann (eds.), *Proceedings of the Nineteenth International Conference on Machine Learning (ICML 2002)*, pp. 139–146. Morgan Kaufmann. 156

- Ferri, C., Flach, P.A. and Hernández-Orallo, J. (2003).** Improving the AUC of probabilistic estimation trees. In N. Lavrač, D. Gamberger, L. Todorovski and H. Blockeel (eds.), *Proceedings of the European Conference on Machine Learning (ECML 2003)*, LNCS, volume 2837, pp. 121–132. Springer. [156](#)
- Fix, E. and Hodges, J.L. (1951).** Discriminatory analysis. Nonparametric discrimination: Consistency properties. Technical report, USAF School of Aviation Medicine, Texas: Randolph Field. Report Number 4, Project Number 21-49-004. [260](#)
- Flach, P.A. (1994).** *Simply Logical – Intelligent Reasoning by Example*. Wiley. [193](#)
- Flach, P.A. (2003).** The geometry of ROC space: Understanding machine learning metrics through ROC isometrics. In T. Fawcett and N. Mishra (eds.), *Proceedings of the Twentieth International Conference on Machine Learning (ICML 2003)*, pp. 194–201. AAAI Press. [156](#)
- Flach, P.A. (2010a).** First-order logic. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 410–415. Springer. [128](#)
- Flach, P.A. (2010b).** ROC analysis. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 869–875. Springer. [80](#)
- Flach, P.A. and Lachiche, N. (2001).** Confirmation-guided discovery of first-order rules with Tertius. *Machine Learning* 42(1/2):61–95. [193](#)
- Flach, P.A. and Matsubara, E.T. (2007).** A simple lexicographic ranker and probability estimator. In J.N. Kok, J. Koronacki, R.L. de Mántaras, S. Matwin, D. Mladenic and A. Skowron (eds.), *Proceedings of the Eighteenth European Conference on Machine Learning (ECML 2007)*, LNCS, volume 4701, pp. 575–582. Springer. [80, 229](#)
- Freund, Y., Iyer, R.D., Schapire, R.E. and Singer, Y. (2003).** An efficient boosting algorithm for combining preferences. *Journal of Machine Learning Research* 4:933–969. [341](#)
- Freund, Y. and Schapire, R.E. (1997).** A decision-theoretic generalization of on-line learning and an application to boosting. *J. Comput. Syst. Sci.* 55(1):119–139. [341](#)
- Fürnkranz, J. (1999).** Separate-and-conquer rule learning. *Artificial Intelligence Review* 13(1):3–54. [192](#)
- Fürnkranz, J. (2010).** Rule learning. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 875–879. Springer. [192](#)
- Fürnkranz, J. and Flach, P.A. (2003).** An analysis of rule evaluation metrics. In T. Fawcett and N. Mishra (eds.), *Proceedings of the Twentieth International Conference on Machine Learning (ICML 2003)*, pp. 202–209. AAAI Press. [79](#)

- Fürnkranz, J. and Flach, P.A.** (2005). ROC 'n' Rule learning – towards a better understanding of covering algorithms. *Machine Learning* 58(1):39–77. 192
- Fürnkranz, J., Gamberger, D. and Lavrač, N.** (2012). *Foundations of Rule Learning*. Springer. 192
- Fürnkranz, J. and Hüllermeier, E.** (eds.) (2010). *Preference Learning*. Springer. 361
- Fürnkranz, J. and Widmer, G.** (1994). Incremental reduced error pruning. In *Proceedings of the Eleventh International Conference on Machine Learning (ICML 1994)*, pp. 70–77. 192
- Gama, J. and Gaber, M.M.** (eds.) (2007). *Learning from Data Streams: Processing Techniques in Sensor Networks*. Springer. 361
- Ganter, B. and Wille, R.** (1999). *Formal Concept Analysis: Mathematical Foundations*. Springer. 127
- Garriga, G.C., Kralj, P. and Lavrač, N.** (2008). Closed sets for labeled data. *Journal of Machine Learning Research* 9:559–580. 127
- Gärtner, T.** (2009). *Kernels for Structured Data*. World Scientific. 230
- Grünwald, P.D.** (2007). *The Minimum Description Length Principle*. MIT Press. 297
- Guyon, I. and Elisseeff, A.** (2003). An introduction to variable and feature selection. *Journal of Machine Learning Research* 3:1157–1182. 328
- Hall, M.A.** (1999). Correlation-based feature selection for machine learning. Ph.D. thesis, University of Waikato. 328
- Han, J., Cheng, H., Xin, D. and Yan, X.** (2007). Frequent pattern mining: Current status and future directions. *Data Mining and Knowledge Discovery* 15(1):55–86. 193
- Hand, D.J. and Till, R.J.** (2001). A simple generalisation of the area under the ROC curve for multiple class classification problems. *Machine Learning* 45(2):171–186. 102
- Haussler, D.** (1988). Quantifying inductive bias: AI learning algorithms and Valiant's learning framework. *Artificial Intelligence* 36(2):177–221. 128
- Hernández-Orallo, J., Flach, P.A. and Ferri, C.** (2011). Threshold choice methods: The missing link. Available online at <http://arxiv.org/abs/1112.2640>. 358
- Ho, T.K.** (1995). Random decision forests. In *Proceedings of the International Conference on Document Analysis and Recognition*, p. 278. IEEE Computer Society, Los Alamitos, CA, USA. 341

- Hoerl, A.E. and Kennard, R.W. (1970).** Ridge regression: Biased estimation for nonorthogonal problems. *Technometrics* pp. 55–67. 228
- Hofmann, T. (1999).** Probabilistic latent semantic indexing. In *Proceedings of the Twenty-Second Annual International ACM Conference on Research and Development in Information Retrieval (SIGIR 1999)*, pp. 50–57. ACM Press. 329
- Hunt, E.B., Marin, J. and Stone, P.J. (1966).** *Experiments in Induction*. Academic Press. 127, 156
- Jain, A.K., Murty, M.N. and Flynn, P.J. (1999).** Data clustering: A review. *ACM Computing Surveys* 31(3):264–323. 261
- Japkowicz, N. and Shah, M. (2011).** *Evaluating Learning Algorithms: A Classification Perspective*. Cambridge University Press. 357
- Jebara, T. (2004).** *Machine Learning: Discriminative and Generative*. Springer. 296
- John, G.H. and Langley, P. (1995).** Estimating continuous distributions in Bayesian classifiers. In *Proceedings of the Eleventh Conference on Uncertainty in Artificial Intelligence (UAI 1995)*, pp. 338–345. Morgan Kaufmann. 295
- Kaufman, L. and Rousseeuw, P.J. (1990).** *Finding Groups in Data: An Introduction to Cluster Analysis*. John Wiley. 261
- Kearns, M.J. and Valiant, L.G. (1989).** Cryptographic limitations on learning Boolean formulae and finite automata. In D.S. Johnson (ed.), *Proceedings of the Twenty-First Annual ACM Symposium on Theory of Computing (STOC 1989)*, pp. 433–444. ACM Press. 341
- Kearns, M.J. and Valiant, L.G. (1994).** Cryptographic limitations on learning Boolean formulae and finite automata. *Journal of the ACM* 41(1):67–95. 341
- Kerber, R. (1992).** Chimerge: Discretization of numeric attributes. In *Proceedings of the Tenth National Conference on Artificial Intelligence (AAAI 1992)*, pp. 123–128. AAAI Press. 328
- Kibler, D.F. and Langley, P. (1988).** Machine learning as an experimental science. In *Proceedings of the European Working Session on Learning (EWSL 1988)*, pp. 81–92. 359
- King, R.D., Srinivasan, A. and Dehaspe, L. (2001).** Warmr: A data mining tool for chemical data. *Journal of Computer-Aided Molecular Design* 15(2):173–181. 193

- Kira, K. and Rendell, L.A. (1992).** The feature selection problem: Traditional methods and a new algorithm. In W.R. Swartout (ed.), *Proceedings of the Tenth National Conference on Artificial Intelligence (AAAI 1992)*, pp. 129–134. AAAI Press / MIT Press. 328
- Klösgen, W. (1996).** Explora: A multipattern and multistrategy discovery assistant. In *Advances in Knowledge Discovery and Data Mining*, pp. 249–271. MIT Press. 103
- Kohavi, R. and John, G.H. (1997).** Wrappers for feature subset selection. *Artificial Intelligence* 97(1-2):273–324. 328
- Koren, Y., Bell, R. and Volinsky, C. (2009).** Matrix factorization techniques for recommender systems. *IEEE Computer* 42(8):30–37. 328
- Kramer, S. (1996).** Structural regression trees. In *Proceedings of the National Conference on Artificial Intelligence (AAAI 1996)*, pp. 812–819. 156
- Kramer, S., Lavrač, N. and Flach, P.A. (2000).** Propositionalization approaches to relational data mining. In S. Džeroski and N. Lavrač (eds.), *Relational Data Mining*, pp. 262–286. Springer. 328
- Krogel, M.A., Rawles, S., Zelezny, F., Flach, P.A., Lavrač, N. and Wrobel, S. (2003).** Comparative evaluation of approaches to propositionalization. In T. Horváth (ed.), *Proceedings of the Thirteenth International Conference on Inductive Logic Programming (ILP 2003)*, LNCS, volume 2835, pp. 197–214. Springer. 328
- Kuncheva, L.I. (2004).** *Combining Pattern Classifiers: Methods and Algorithms*. John Wiley and Sons. 341
- Lachiche, N. (2010).** Propositionalization. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 812–817. Springer. 328
- Lachiche, N. and Flach, P.A. (2003).** Improving accuracy and cost of two-class and multi-class probabilistic classifiers using ROC curves. In T. Fawcett and N. Mishra (eds.), *Proceedings of the Twentieth International Conference on Machine Learning (ICML 2003)*, pp. 416–423. AAAI Press. 102
- Lafferty, J.D., McCallum, A. and Pereira, F.C.N. (2001).** Conditional random fields: Probabilistic models for segmenting and labeling sequence data. In C.E. Brodley and A.P. Danyluk (eds.), *Proceedings of the Eighteenth International Conference on Machine Learning (ICML 2001)*, pp. 282–289. Morgan Kaufmann. 296
- Langley, P. (1988).** Machine learning as an experimental science. *Machine Learning* 3:5–8. 359

- Langley, P. (1994).** *Elements of Machine Learning*. Morgan Kaufmann. 156
- Langley, P. (2011).** The changing science of machine learning. *Machine Learning* 82(3):275–279. 359
- Lavrač, N., Kavšek, B., Flach, P.A. and Todorovski, L. (2004).** Subgroup discovery with CN2-SD. *Journal of Machine Learning Research* 5:153–188. 193
- Lee, D.D., Seung, H.S. et al. (1999).** Learning the parts of objects by non-negative matrix factorization. *Nature* 401(6755):788–791. 328
- Leman, D., Feelders, A. and Knobbe, A.J. (2008).** Exceptional model mining. In W. Daelemans, B. Goethals and K. Morik (eds.), *Proceedings of the European Conference on Machine Learning and Knowledge Discovery in Databases (ECML-PKDD 2008), Part II, LNCS*, volume 5212, pp. 1–16. Springer. 103
- Lewis, D. (1998).** Naive Bayes at forty: The independence assumption in information retrieval. In *Proceedings of the Tenth European Conference on Machine Learning (ECML 1998)*, pp. 4–15. Springer. 295
- Li, W., Han, J. and Pei, J. (2001).** CMAR: Accurate and efficient classification based on multiple class-association rules. In N. Cercone, T.Y. Lin and X. Wu (eds.), *Proceedings of the IEEE International Conference on Data Mining (ICDM 2001)*, pp. 369–376. IEEE Computer Society. 193
- Little, R.J.A. and Rubin, D.B. (1987).** *Statistical Analysis with Missing Data*. Wiley. 296
- Liu, B., Hsu, W. and Ma, Y. (1998).** Integrating classification and association rule mining. In *Proceedings of the Fourth International Conference on Knowledge Discovery and Data Mining (KDD 1998)*, pp. 80–86. AAAI Press. 193
- Lloyd, J.W. (2003).** *Logic for Learning – Learning Comprehensible Theories from Structured Data*. Springer. 193
- Lloyd, S. (1982).** Least squares quantization in PCM. *IEEE Transactions on Information Theory* 28(2):129–137. 261
- Mahalanobis, P.C. (1936).** On the generalised distance in statistics. *Proceedings of the National Institute of Science, India* 2(1):49–55. 260
- Mahoney, M.W. and Drineas, P. (2009).** CUR matrix decompositions for improved data analysis. *Proceedings of the National Academy of Sciences* 106(3):697. 329
- McCallum, A. and Nigam, K. (1998).** A comparison of event models for naive Bayes text classification. In *Proceedings of the AAAI-98 Workshop on Learning for Text Categorization*, pp. 41–48. 295

- Michalski, R.S. (1973).** Discovering classification rules using variable-valued logic system VL₁. In *Proceedings of the Third International Joint Conference on Artificial Intelligence*, pp. 162–172. Morgan Kaufmann Publishers. 127
- Michalski, R.S. (1975).** Synthesis of optimal and quasi-optimal variable-valued logic formulas. In *Proceedings of the 1975 International Symposium on Multiple-Valued Logic*, pp. 76–87. 192
- Michie, D., Spiegelhalter, D.J. and Taylor, C.C. (1994).** *Machine Learning, Neural and Statistical Classification*. Ellis Horwood. 342
- Miettinen, P. (2009).** Matrix decomposition methods for data mining: Computational complexity and algorithms. Ph.D. thesis, University of Helsinki. 329
- Minsky, M. and Papert, S. (1969).** *Perceptrons: An Introduction to Computational Geometry*. MIT Press. 228
- Mitchell, T.M. (1977).** Version spaces: A candidate elimination approach to rule learning. In *Proceedings of the Fifth International Joint Conference on Artificial Intelligence*, pp. 305–310. Morgan Kaufmann Publishers. 127
- Mitchell, T.M. (1997).** *Machine Learning*. McGraw-Hill. 128
- Muggleton, S. (1995).** Inverse entailment and Progol. *New Generation Computing* 13(3&4):245–286. 193
- Muggleton, S., De Raedt, L., Poole, D., Bratko, I., Flach, P.A., Inoue, K. and Srinivasan, A. (2012).** ILP turns 20 – biography and future challenges. *Machine Learning* 86(1):3–23. 193
- Muggleton, S. and Feng, C. (1990).** Efficient induction of logic programs. In *Proceedings of the International Conference on Algorithmic Learning Theory (ALT 1990)*, pp. 368–381. 193
- Murphy, A.H. and Winkler, R.L. (1984).** Probability forecasting in meteorology. *Journal of the American Statistical Association* pp. 489–500. 80
- Nelder, J.A. and Wedderburn, R.W.M. (1972).** Generalized linear models. *Journal of the Royal Statistical Society, Series A (General)* pp. 370–384. 296
- Novikoff, A.B. (1962).** On convergence proofs on perceptrons. In *Proceedings of the Symposium on the Mathematical Theory of Automata*, volume 12, pp. 615–622. Polytechnic Institute of Brooklyn, New York. 228

- Pasquier, N., Bastide, Y., Taouil, R. and Lakhal, L. (1999).** Discovering frequent closed itemsets for association rules. In *Proceedings of the International Conference on Database Theory (ICDT 1999)*, pp. 398–416. Springer. 127
- Peng, Y., Flach, P.A., Soares, C. and Brazdil, P. (2002).** Improved dataset characterisation for meta-learning. In S. Lange, K. Satoh and C.H. Smith (eds.), *Proceedings of the Fifth International Conference on Discovery Science (DS 2002), LNCS*, volume 2534, pp. 141–152. Springer. 342
- Pfahringer, B., Bensusan, H. and Giraud-Carrier, C.G. (2000).** Meta-learning by landmarking various learning algorithms. In P. Langley (ed.), *Proceedings of the Seventeenth International Conference on Machine Learning (ICML 2000)*, pp. 743–750. Morgan Kaufmann. 342
- Platt, J.C. (1998).** Using analytic QP and sparseness to speed training of support vector machines. In M.J. Kearns, S.A. Solla and D.A. Cohn (eds.), *Advances in Neural Information Processing Systems 11 (NIPS 1998)*, pp. 557–563. MIT Press. 229
- Plotkin, G.D. (1971).** Automatic methods of inductive inference. Ph.D. thesis, University of Edinburgh. 127
- Provost, F.J. and Domingos, P. (2003).** Tree induction for probability-based ranking. *Machine Learning* 52(3):199–215. 156
- Provost, F.J. and Fawcett, T. (2001).** Robust classification for imprecise environments. *Machine Learning* 42(3):203–231. 79
- Quinlan, J.R. (1986).** Induction of decision trees. *Machine Learning* 1(1):81–106. 155
- Quinlan, J.R. (1990).** Learning logical definitions from relations. *Machine Learning* 5:239–266. 193
- Quinlan, J.R. (1993).** *C4.5: Programs for Machine Learning*. Morgan Kaufmann. 156
- Ragavan, H. and Rendell, L.A. (1993).** Lookahead feature construction for learning hard concepts. In *Proceedings of the Tenth International Conference on Machine Learning (ICML 1993)*, pp. 252–259. Morgan Kaufmann. 328
- Rajnarayan, D.G. and Wolpert, D. (2010).** Bias-variance trade-offs: Novel applications. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 101–110. Springer. 103
- Rissanen, J. (1978).** Modeling by shortest data description. *Automatica* 14(5):465–471. 297
- Rivest, R.L. (1987).** Learning decision lists. *Machine Learning* 2(3):229–246. 192

- Robnik-Sikonja, M. and Kononenko, I. (2003).** Theoretical and empirical analysis of ReliefF and RReliefF. *Machine Learning* 53(1-2):23–69. 328
- Rosenblatt, F. (1958).** The perceptron: A probabilistic model for information storage and organization in the brain. *Psychological Review* 65(6):386. 228
- Rousseeuw, P.J. (1987).** Silhouettes: A graphical aid to the interpretation and validation of cluster analysis. *Journal of Computational and Applied Mathematics* 20(0):53–65. 261
- Rumelhart, D.E., Hinton, G.E. and Williams, R.J. (1986).** Learning representations by back-propagating errors. *Nature* 323(6088):533–536. 229
- Schapire, R.E. (1990).** The strength of weak learnability. *Machine Learning* 5:197–227. 341
- Schapire, R.E. (2003).** The boosting approach to machine learning: An overview. In *Nonlinear Estimation and Classification*, pp. 149–172. Springer. 341
- Schapire, R.E., Freund, Y., Bartlett, P. and Lee, W.S. (1998).** Boosting the margin: A new explanation for the effectiveness of voting methods. *Annals of Statistics* 26(5):1651–1686. 341
- Schapire, R.E. and Singer, Y. (1999).** Improved boosting algorithms using confidence-rated predictions. *Machine Learning* 37(3):297–336. 341
- Settles, B. (2011).** *Active Learning*. Morgan & Claypool. 361
- Shawe-Taylor, J. and Cristianini, N. (2004).** *Kernel Methods for Pattern Analysis*. Cambridge University Press. 230
- Shotton, J., Fitzgibbon, A.W., Cook, M., Sharp, T., Finocchio, M., Moore, R., Kipman, A. and Blake, A. (2011).** Real-time human pose recognition in parts from single depth images. In *Proceedings of the Twenty-Fourth IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2011)*, pp. 1297–1304. 155
- Silver, D. and Bennett, K. (2008).** Guest editor's introduction: special issue on inductive transfer learning. *Machine Learning* 73(3):215–220. 361
- Solomonoff, R.J. (1964a).** A formal theory of inductive inference: Part I. *Information and Control* 7(1):1–22. 297
- Solomonoff, R.J. (1964b).** A formal theory of inductive inference: Part II. *Information and Control* 7(2):224–254. 297
- Srinivasan, A. (2007).** The Aleph manual, version 4 and above. Available online at www.cs.ox.ac.uk/activities/machlearn/Aleph/. 193

- Stevens, S.S. (1946).** On the theory of scales of measurement. *Science* 103(2684):677–680. 327
- Sutton, R.S. and Barto, A.G. (1998).** *Reinforcement Learning: An Introduction*. MIT Press. 361
- Tibshirani, R. (1996).** Regression shrinkage and selection via the lasso. *Journal of the Royal Statistical Society, Series B (Methodological)* pp. 267–288. 228
- Todorovski, L. and Dzeroski, S. (2003).** Combining classifiers with meta decision trees. *Machine Learning* 50(3):223–249. 342
- Tsoumakas, G., Zhang, M.L. and Zhou, Z.H. (2012).** Introduction to the special issue on learning from multi-label data. *Machine Learning* 88(1-2):1–4. 361
- Tukey, J.W. (1977).** *Exploratory Data Analysis*. Addison-Wesley. 103
- Valiant, L.G. (1984).** A theory of the learnable. *Communications of the ACM* 27(11):1134–1142. 128
- Vapnik, V.N. and Chervonenkis, A.Y. (1971).** On uniform convergence of the frequencies of events to their probabilities. *Teoriya Veroyatnostei I Ee Primeneniya* 16(2):264–279. 128
- Vere, S.A. (1975).** Induction of concepts in the predicate calculus. In *Proceedings of the Fourth International Joint Conference on Artificial Intelligence*, pp. 281–287. 127
- von Hippel, P.T. (2005).** Mean, median, and skew: Correcting a textbook rule. *Journal of Statistics Education* 13(2). 327
- Wallace, C.S. and Boulton, D.M. (1968).** An information measure for classification. *Computer Journal* 11(2):185–194. 297
- Webb, G.I. (1995).** Opus: An efficient admissible algorithm for unordered search. *Journal of Artificial Intelligence Research* 3:431–465. 192
- Webb, G.I., Boughton, J.R. and Wang, Z. (2005).** Not so naive Bayes: Aggregating one-dependence estimators. *Machine Learning* 58(1):5–24. 295
- Winston, P.H. (1970).** Learning structural descriptions from examples. Technical report, MIT Artificial Intelligence Lab. AIRR-231. 127
- Wojtusiak, J., Michalski, R.S., Kaufman, K.A. and Pietrzykowski, J. (2006).** The AQ21 natural induction program for pattern discovery: Initial version and its novel features. In *Proceedings of the Eighteenth IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2006)*, pp. 523–526. 192

- Wolpert, D.H. (1992).** Stacked generalization. *Neural Networks* 5(2):241–259. 342
- Zadrozny, B. and Elkan, C. (2002).** Transforming classifier scores into accurate multiclass probability estimates. In *Proceedings of the Eighth ACM International Conference on Knowledge Discovery and Data Mining (SIGKDD 2002)*, pp. 694–699. ACM Press. 80, 229
- Zeugmann, T. (2010).** PAC learning. In C. Sammut and G.I. Webb (eds.), *Encyclopedia of Machine Learning*, pp. 745–753. Springer. 128
- Zhou, Z.H. (2012).** *Ensemble Methods: Foundations and Algorithms*. Taylor & Francis. 341

