References

- [1] M. Aizerman, E. Braverman, and L. Rozonoer. Theoretical foundations of the potential function method in pattern recognition learning. *Automation and Remote Control*, **25** (1964): 821–837.
- [2] S. Akaho. A kernel method for canonical correlation analysis. In *Proceedings* of the International Meeting of the Psychometric Society (IMPS2001). Springer-Verlag, 2001.
- [3] J.K. Anlauf and M. Biehl. The adatron: an adaptive perceptron algorithm. *Europhys. Letters*, **10** (1989): 687–692.
- [4] M. Anthony and P. Bartlett. Neural Network Learning: Theoretical Foundations. Cambridge University Press, 1999.
- [5] M. Anthony and N. Biggs. Computational Learning Theory, volume 30 of Cambridge Tracts in Theoretical Computer Science. Cambridge University Press, 1992.
- [6] N. Aronszajn. Theory of reproducing kernels. Transactions of the American Mathematical Society, 68 (1950): 337–404.
- [7] F.R. Bach and M.I. Jordan. Kernel independent component analysis. *Journal of Machine Learning Research*, **3** (2002): 1–48.
- [8] P.L. Bartlett. The sample complexity of pattern classification with neural networks: the size of the weights is more important than the size of the network. *IEEE Transactions on Information Theory*, 44(2) (1998): 525–536.
- [9] P.L. Bartlett, S. Boucheron, and G. Lugosi. Model selection and error estimation. *Machine Learning*, 48 (2002): 85–113.
- [10] P.L. Bartlett and S. Mendelson. Rademacher and Gaussian complexities: risk bounds and structural results. *Journal of Machine Learning Research*, 3 (2002): 463–482.
- [11] G. Baudat and F. Anouar. Generalized discriminant analysis using a kernel approach. *Neural Computation*, **12**(10) (2000): 2385-2404.
- [12] M. Belkin and P. Niyogi. Laplacian eigenmaps and spectral techniques for embedding and clustering. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, Advances in Neural Information Processing Systems 14. MIT Press, 2002, pp. 585–591.

- [13] K.P. Bennett and O.L. Mangasarian. Robust linear programming discrimination of two linearly inseparable sets. *Optimization Methods and Software*, **1** (1992): 23–34.
- [14] C.M. Bishop. Neural Networks for Pattern Recognition. Clarendon Press, 1995.
- [15] M. Borga, T. Landelius, and H. Knutsson. A Unified Approach to PCA, PLS, MLR and CCA. Report LiTH-ISY-R-1992, ISY, SE-581 83 Linköping, Sweden, November 1997.
- [16] B.E. Boser, I.M. Guyon, and V.N. Vapnik. A training algorithm for optimal margin classifiers. In D. Haussler, editor, *Proceedings of the 5th Annual ACM Workshop on Computational Learning Theory (COLT)* ACM Press, July 1992, pp. 144–152.
- [17] S. Boucheron, G. Lugosi, and P. Massart. A sharp concentration inequality with applications. *Random Structures and Algorithms*, 16 (2000):277–292, 2000.
- [18] O. Bousquet and A. Elisseeff. Algorithmic stability and generalization performance. In T.K. Leen, T.G. Dietterich, and T., Volker editors, Advances in Neural Information Processing Systems 13 MIT Press, 2001, pp. 196–202.
- [19] L. Breiman, J. Friedman, R. Olshen, and C. Stone. Classification and Regression Trees. Wadsworth International, 1984.
- [20] C.J.C. Burges. A tutorial on support vector machines for pattern recognition. Data Mining and Knowledge Discovery, 2(2) (1998): 121–167.
- [21] C.J.C. Burges and V. Vapnik. A new method for constructing artificial neural networks: Interim technical report, ONR contract N00014-94-C-0186. Technical report, AT&T Bell Laboratories, 1995.
- [22] G. Chaitin. Algorithmic Information Theory. Cambridge University Press, 1987.
- [23] M. Collins and N. Duffy. Convolution kernels for natural language. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, Advances in Neural Information Processing Systems 14. MIT Press, 2002, pp. 625–632.
- [24] T.H. Cormen, C.E. Leiserson, R.L. Rivest, and C. Stein. Introduction to Algorithms. MIT Press, 2001, 2nd edition.
- [25] C. Cortes, P. Haffner, and M. Mohri. Positive definite rational kernels. In Proceedings of The 16th Annual Conference on Computational Learning Theory (COLT 2003), volume 2777 of Lecture Notes in Computer Science. Springer-Verlag, 2003, pp. 41–56.
- [26] C. Cortes, P. Haffner, and M. Mohri. Rational kernels. In Suzanna Becker, Sebastian Thrun, and Klaus Obermayer, editors, Advances in Neural Information Processing Systems 15. MIT Press, 2003.
- [27] C. Cortes and V. Vapnik. Support vector networks. Machine Learning, 20 (1995): 273–297.
- [28] T.M. Cover. Geometrical and statistical properties of systems of linear inequalities with applications in pattern recognition. *IEEE Trans. Elect. Comp.*, 14 (1965): 326–334.
- [29] T.M. Cover and J.A. Thomas. Elements of Information Theory. Wiley-Interscience, 1991.

- [30] K. Crammer and Y. Singer. Pranking with ranking. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, Advances in Neural Information Processing Systems 14. MIT Press, 2002, pp. 641–647.
- [31] N. Cristianini, H. Lodhi, and J. Shawe-Taylor. Latent semantic kernels. Journal of Intelligent Information Systems, 18 (2002): 127–152.
- [32] N. Cristianini and J. Shawe-Taylor. An Introduction to Support Vector Machines. Cambridge: Cambridge University Press, 2000.
- [33] N. Cristianini, J. Shawe-Taylor, A. Elisseeff, and J. Kandola. On kernel-target alignment. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, Advances in Neural Information Processing Systems 14. MIT Press, 2002.
- [34] N. Cristianini, J. Shawe-Taylor, and J. Kandola. Spectral kernel methods for clustering. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, Advances in Neural Information Processing Systems 14. MIT Press, 2002, pp. 649–655.
- [35] N. Cristianini, J. Shawe-Taylor, and H. Lodhi. Latent semantic kernels. In Carla Brodley and Andrea Dany In *Proceedings of the 18th International Conference on Machine Learning (ICML 2001)*. Morgan Kaufmann, 2001, pp. 66–73.
- [36] M. Cuturi and J.-P. Vert. A covariance kernel for proteins. Technical report, 2003. http://arxiv.org/abs/q-bio.GN/0310022.
- [37] S. Deerwester, S. Dumais, G. Furnas, T. Landauer, and R. Harshman. Indexing by latent semantic analysis. *Journal of the American Society for Information Science*, 41 (1990): 391–407
- [38] L. Devroye, L. Györfi, and G. Lugosi. A Probabilistic Theory of Pattern Recognition. Number 31 in Applications of mathematics. Springer-Verlag, 1996.
- [39] R.O. Duda and P.E. Hart. *Pattern Classification and Scene Analysis*. John Wiley & Sons, 1973.
- [40] R.O. Duda, P.E. Hart, and D.G. Stork. Pattern Classification. Wiley-Interscience, 2000, 2nd edition.
- [41] S.T. Dumais, J. Platt, D. Heckerman, and M. Sahami. Inductive learning algorithms and representations for text categorisation. In *Proceedings of the Seventh International Conference on Information and Knowledge Management*, 1998, pp. 148–155 (see www.csee.umbc.edu/cikm/1998#announce).
- [42] R. Durbin, S. Eddy, A. Krogh, and G. Mitchison. Biological Sequence Analysis: Probabilistic Models of Proteins and Nucleic Acids. Cambridge University Press, 1998.
- [43] T. Evgeniou, M. Pontil, and T. Poggio. Regularization networks and support vector machines. *Advances in Computational Mathematics*, **13**(1) (2000): 1–50.
- [44] R.A. Fisher. The use of multiple measurements in taxonomic problems. Annals of Eugenics, 7(2) (1986): 179–188.
- [45] K.S. Fu. Syntactic Methods in Pattern Recognition. Academic Press, 1974.
- [46] K. Fukunaga. Introduction to Statistical Pattern Recognition. Academic Press, 1990, 2nd edition.
- [47] F. Girosi. An equivalence between sparse approximation and support vector machines. *Neural Computation*, **10**(6) (1998): 1455–1480.
- [48] F. Girosi, M. Jones, and T. Poggio. Regularization theory and neural networks architectures. Neural Computation, 7(2) 1995: 219–269.

- [49] G.H. Golub and C.F. Van Loan. Matrix Computations. Johns Hopkins University Press, 1996.
- [50] D. Gusfield. Algorithms on Strings, Trees, and Sequences. Cambridge University Press, 1997.
- [51] D.R. Hardoon, and J. Shawe-Taylor. KCCA for different level precision in content-based image retrieval. In *Proceedings of Third International Workshop* on Content-Based Multimedia Indexing, 2003, IRISA, Rennes, France.
- [52] D.R. Hardoon, S. Szedmak, and J. Shawe-Taylor. Canonical correlation analysis; an overview with application to learning methods. Technical Report CSD-TR-03-02, Royal Holloway University of London, 2003.
- [53] T. Hastie, R. Tibshirani, and J. Friedman. The Elements of Statistical Learning – Data Mining, Inference and Prediction. Springer-Verlag, 2001.
- [54] D. Haussler. Convolution kernels on discrete structures. Technical Report UCSC-CRL-99-10, University of California in Santa Cruz, Computer Science Department, July 1999.
- [55] R. Herbrich. Learning Kernel Classifiers: Theory and Algorithms. MIT Press, 2001.
- [56] R. Herbrich, T. Graepel, and K. Obermayer. Large margin rank boundaries for ordinal regression. In Advances in Large Margin Classifiers. MIT Press, 2000, pp. 115–132.
- [57] J. Hertz, A. Krogh, and R.G. Palmer. Introduction to the Theory of Neural Computation. Addison-Wesley, 1991.
- [58] A.E. Hoerl and R.W. Kennard. Ridge regression: Biased estimation for nonorthogonal problems. *Technometrics*, 12(1) (1970): 55–67.
- [59] T. Hofmann. Learning the similarity of documents: an information-geometric approach to document retrieval and categorization. In *Proceedings of Advances in Neural Information Processing Systems (NIPS'99)*, volume 12. MIT Press, 2000.
- [60] A. Höskuldsson. Pls regression methods. Journal of Chemometrics, 2 (1998): 211–228.
- [61] H. Hotelling. Analysis of a complex of statistical variables into principal components. Journal of Educational Psychology, 24 (1933): 417–441 and 498–520.
- [62] H. Hotelling. Relations between two sets of variables. Biometrika, 28 (1936): 321–377.
- [63] T.S. Jaakkola and D. Haussler. Exploiting generative models in discriminative classifiers. In Advances in Neural Information Processing Systems 11, 1998. MIT Press, 1998.
- [64] T.S. Jaakkola and D. Haussler. Probabilistic kernel regression models. In Proceedings of the 1999 Conference on AI and Statistics. Morgan Kauffman, 1999.
- [65] T. Jebara and Risi Kondor. Bhattacharyya and expected likelihood kernels. In Proceedings of the 16th Conference on Learning Theory (COLT). Association for computing Machinery (ACM), 2003.
- [66] F. Jiang and M. Littman. Approximate dimension equalization in vectorbased information retrieval. In *Proceedings of XXVII International Conference* on Machine Learning. Morgan Kauffman, 2000.

- [67] T. Joachims. Text categorization with support vector machines. In *European Conference on Machine Learning (ECML)*. Springer-Verlag, 1998.
- [68] T. Joachims. Learning to Classify Text using Support Vector Machines. Kluwer, 2002.
- [69] T. Joachims, N. Cristianini, and J. Shawe-Taylor. Composite kernels for hypertext categorisation. In *Proceedings of the International Conference on Machine Learning*, ICML'01. Morgan Kauffman, 2001.
- [70] M.I. Jordan. An Introduction to Probabilistic Graphical Models. Forthcoming, 2004.
- [71] J. Kandola, J. Shawe-Taylor, and N. Cristianini. Learning semantic similarity. In Neural Information Processing Systems 15 (NIPS 15). MIT Press, 2002.
- [72] J. Kandola, J. Shawe-Taylor, and N. Cristianini. On the extensions of kernel alignment. NeuroCOLT Technical Report NC-TR-2002-120, http://www.neurocolt.org, 2002.
- [73] J. Kandola, J. Shawe-Taylor, and N. Cristianini. Optimizing kernel alignment over combinations of kernel. NeuroCOLT Technical Report NC-TR-2002-121, http://www.neurocolt.org, 2002.
- [74] R. Kannan, S. Vempala, and A. Vetta. On clusterings: good, bad and spectral. In *Proc. of the 41st Foundations of Computer Science (FOCS '00)*. Morgan Kauffman, 2000.
- [75] H. Kashima, K. Tsuda, and A. Inokuchi. Marginalized kernels between labeled graphs. In *Proceedings of the 20th International Conference on Machine Learning*. Morgan Kauffman, 2003.
- [76] M. Kearns and U. Vazirani. An Introduction to Computational Learning Theory. MIT Press, 1994.
- [77] T. Kin, K. Tsuda, and K. Asai. Marginalized kernels for RNA sequence data analysis. In R. H. Lathtop, K. Nakai, S. Miyano, T. Takagi, and M. Kanehisa, editors, *Genome Informatics 2002*. Universal Academic Press, 2002, pp. 112–132.
- [78] A. Koestler. The Sleepwalkers. Penguin, 1979.
- [79] V. Koltchinskii. Rademacher penalties and structural risk minimization. IEEE Transactions on Information Theory, 47(5) (July 2001): 1902–1914.
- [80] V. Koltchinskii and D. Panchenko. Rademacher processes and bounding the risk of function learning. *High Dimensional Probability II*, 2000, pp. 443–459.
- [81] Vladimir I. Koltchinskii and Dmitry Panchenko. Empirical margin distributions and bounding the generalization error of combined classifiers. *Annals of Statistics*, **30**(1), (2002).
- [82] R.I. Kondor and J. Lafferty. Diffusion kernels on graphs and other discrete structures. In *Proceedings of Intenational Conference on Machine Learning* (ICML 2002). Morgan, Kauffman 2002.
- [83] P.L. Lai and C. Fyfe. Kernel and nonlinear canonical correlation analysis. *International Journal of Neural Systems*, **10**(5) (2000): 365–377.
- [84] J. Langford and J. Shawe-Taylor. PAC Bayes and margins. In Advances in Neural Information Processing Systems 15. MIT Press, 2003.
- [85] M. Ledoux and M. Talagrand. Probability in Banach Spaces: Isoperimetry and Processes. Springer-Verlag, 1991.

- [86] E. Leopold and J. Kinderman. Text categorization with support vector machines. How to represent texts in input space? *Machine Learning: Special Issue on Support Vector and Kernel Methods*, **46** (1–3) (2002): 423–444.
- [87] C. Leslie, E. Eskin, A. Cohen, J. Weston, and William Stafford Noble. Mismatch string kernels for discriminative protein classification. *Bioinformatics*, 2003. to appear.
- [88] C. Leslie, E. Eskin, and W.S. Noble. The spectrum kernel: A string kernel for SVM protein classification. In *Proceedings of the Pacific Symposium on Biocomputing (PSB-2002)*. World Scientific Publishing, 2002.
- [89] C. Leslie, E. Eskin, J. Weston, and W.S. Noble. Mismatch string kernels for SVM protein classification. In Advances in Neural Information Processing Systems 15. MIT Press, 2003.
- [90] C. Leslie and Rui Kuang. Fast kernels for inexact string matching. In Proceedings of the 16th Conference on Learning Theory (COLT). ACM, 2003.
- [91] M. Li and P. Vitanyi. An Introduction to Kolmogorov Complexity and Its Applications. Springer-Verlag, 1997.
- [92] M.L. Littman, S.T. Dumais, and T.K. Landauer. Automatic cross-language information retrieval using latent semantic indexing. In G. Grefenstette, editor, *Cross Language Information Retrieval*. Kluwer, 1998.
- [93] H. Lodhi, C. Saunders, J. Shawe-Taylor, N. Cristianini, and C. Watkins. Text classification using string kernels. *Journal of Machine Learning Research*, 2 (2002): 419–444.
- [94] O.L. Mangasarian. Nonlinear Programming. SIAM, 1994.
- [95] O.L. Mangasarian. Linear and nonlinear separation of patterns by linear programming. Operations Research, 13 (1965): 444–452.
- [96] C. McDiarmid. On the method of bounded differences. In 141 London Mathematical Society Lecture Notes Series, editor, Surveys in Combinatorics 1989, Cambridge University Press, 1989, pp. 148–188.
- [97] J. Mercer. Functions of positive and negative type and their connection with the theory of integral equations. *Philosophical Transactions of the Royal Society* of London, Series A 209 (1909): 415–446.
- [98] C. Meyer. Matrix Analysis and Applied Linear Algebra. SIAM, 2000.
- [99] C.A. Micchelli. Interpolation of scattered data: distance matrices and conditionally positive definite functions. *Constructive Approximation*, 2 (1986): 11–22.
- [100] S. Mika, G. Rätsch, J. Weston, B. Schölkopf, and K.-R. Müller. Fisher discriminant analysis with kernels. In Y.-H. Hu, J. Larsen. E. Wilson, and S. Douglas, editors, *Neural Networks for Signal Processing IX*. IEEE, 1999, pp. 41–48.
- [101] M. Minsky and S. Papert. Perceptrons: An Introduction to Computational Geometry. MIT Press, 1969.
- [102] T. Mitchell. Machine Learning. McGraw-Hill, 1997.
- [103] A. Ng, M.I. Jordan, and Y. Weiss. On spectral clustering: Analysis and an algorithm. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, *Advances in Neural Information Processing Systems* 14. MIT Press, 2002.
- [104] C.S. Ong, A. Smola, and Robert C. Williamson. Superkernels. In Advances in Neural Information Processing Systems (NIPS 02). MIT Press, 2003.

- [105] T. Pisanski and J. Shawe-Taylor. Characterising graph drawing with eigenvectors. *Journal of Chemical Information and Computer Sciences*, **40**(3) (2000): 567–571.
- [106] T. Poggio. On optimal nonlinear associative recall. Biological Cybernetics, 19 (1975): 201–209.
- [107] T. Poggio and F. Girosi. Regularization algorithms for learning that are equivalent to multilayer networks. *Science*, **247** (1990): 978–982.
- [108] T. Poggio and S. Smale. The mathematics of learning: dealing with data. *American Mathematical Society*, **50**(5) (2003): 537–544.
- [109] J.R. Quinlan. C4.5: Programs for Machine Learning. Morgan Kauffmann, 1993.
- [110] B.D. Ripley. *Pattern Recognition and Neural Networks*. Cambridge University Press, 1996.
- [111] F. Rosenblatt. The perceptron: A probabilistic model for information storage and organization in the brain. *Psychological Review*, **65**(6) (1958): 386–408.
- [112] R. Rosipal and L.J. Trejo. Kernel partial least squares regression in reproducing kernel Hilbert space. *Journal of Machine Learning Research*, **2** (2001): 97–123.
- [113] S. Saitoh. Theory of Reproducing Kernels and its Applications. Longman Scientific & Technical, 1988.
- [114] G. Salton, A. Wang, and C. Yang. A vector space model for information retrieval. *Journal of the American Society for Information Science*, 18 (1975): 613–620.
- [115] C. Saunders, A. Gammermann and V. Vovk. Ridge regression learning algorithm in dual variables. In J. Shavlik, editor, *Machine Learning: Proceedings* of the Fifteenth International Conference (ICML '98). Morgan Kaufmann, 1998.
- [116] C. Saunders, J. Shawe-Taylor, and A. Vinokourov. String kernels, Fisher kernels and finite state automata. In Advances of Neural Information Processing Systems 15, 2002.
- [117] B. Schölkopf, C. Burges, and V. Vapnik. Extracting support data for a given task. In U.M. Fayyad and R. Uthurusamy, editors, *Proceedings, First International Conference on Knowledge Discovery & Data Mining*. AAAI Press, 1995.
- [118] B. Schölkopf. Support Vector Learning. R. Oldenbourg Verlag, 1997.
- [119] B. Schölkopf, J.C. Platt, J.S. Shawe-Taylor, A.J. Smola, and R.C. Williamson. Estimating the support of a high-dimensional distribution. *Neural Computation*, 13(7) (2001): 1443–1471.
- [120] B. Schölkopf and A. Smola. Learning with Kernels. MIT Press, 2002.
- [121] B. Schölkopf, A. Smola, and K.-R. Müller. Nonlinear component analysis as a kernel eigenvalue problem. *Neural Computation*, **10** (1998): 1299–1319.
- [122] B. Schölkopf, A. Smola, R. Williamson, and P. Bartlett. New support vector algorithms. *Neural Computation*, **12**(5) (2000): 1207–1245.
- [123] A. Shashua. On the relationship between the support vector machine for classification and sparsified fisher's linear discriminant. *Neural Processing Letters*, **9**(2) (April 1999): 129-139.
- [124] J. Shawe-Taylor, P.L. Bartlett, R.C. Williamson, and M. Anthony. Structural risk minimization over data-dependent hierarchies. *IEEE Transactions on Information Theory*, 44(5) (1998): 1926–1940.

- [125] J. Shawe-Taylor and N. Cristianini. On the generalisation of soft margin algorithms. *IEEE Transactions on Information Theory*, **48**(10) (2002): 2721–2735.
- [126] J. Shawe-Taylor, N. Cristianini, and J. Kandola. On the concentration of spectral properties. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, Advances in Neural Information Processing Systems 14. MIT Press, 2002, pp. 511–517.
- [127] J. Shawe-Taylor, C. Williams, N. Cristianini, and J.S. Kandola. On the eigenspectrum of the Gram matrix and its relationship to the operator eigenspectrum. In *Proceedings of the 13th International Conference on Algorithmic Learning Theory (ALT2002)*, volume 2533, Springer-Verlag, 2002, pp. 23–40.
- [128] G. Siolas and F. d'Alché Buc. Support vector machines based on a semantic kernel for text categorization. In *International Joint Conference on Neural Networks (1JCNN)*. Springer-Verlag, 2002.
- [129] F.W. Smith. Pattern classifier design by linear programming. *IEEE Transactions on Computers*, C-17 (1968): 367–372.
- [130] A. Smola, B. Schölkopf, and K.-R. Müller. The connection between regularization operators and support vector kernels. *Neural Networks*, 11 (1998): 637–649.
- [131] J.A.K. Suykens, T. Van Gestel, J. De Brabanter, B. De Moor, and J. Vandewalle. Least Squares Support Vector Machines. World Scientific Publishing Co., 2002.
- [132] E. Takimoto and M. Warmuth. Path kernels and multiplicative updates. In Proceedings of the 15th Conference on Learning Theory (COLT). ACM, 2002.
- [133] E. Takimoto and M. Warmuth. Predicting nearly as well as the best pruning of a planar decision graph. *Theoretical Computer Science*, **288**(2) (2002): 217–235.
- [134] M. Talagrand. Sharper bounds for Gaussian and empirical processes. *Annals of Probability*, **22** (1994): 28–76.
- [135] M. Talagrand. The Glivenko-Cantelli problem, ten years later. Journal of Theoretical Probability, 9(2) (1996): 371–384.
- [136] D.M.J. Tax and R.P.W. Duin. Support vector domain description. Pattern Recognition Letters, pages 20(11–13) (December 1999): 1191–1199.
- [137] S. Theodoridis and K. Koutroumbas. Pattern Recognition. Academic Press, 2003.
- [138] A.N. Tikhonov and V.Y. Arsenin. Solutions of Ill-posed Problems. W.H. Winston, 1977.
- [139] K. Tsuda, T. Kin, and K. Asai. Marginalized kernels for biological sequences. *Bioinformatics*, **18** (2002): 268–275.
- [140] V. Vapnik. Estimation of Dependences Based on Empirical Data [in Russian]. Nauka, Moscow, 1979. (English translation, Springer Verlag, 1982).
- [141] V. Vapnik. The Nature of Statistical Learning Theory. Springer Verlag, 1995.
- [142] V. Vapnik. Statistical Learning Theory. Wiley, 1998.
- [143] V. Vapnik and A. Chervonenkis. A note on one class of perceptrons. *Automation and Remote Control*, **25** (1964).
- [144] V. Vapnik and A. Chervonenkis. Uniform convergence of frequencies of occurence of events to their probabilities. *Doklady Akademii Nauk SSSR*, 181 (1968): 915–918.

- [145] V. Vapnik and A. Chervonenkis. On the uniform convergence of relative frequencies of events to their probabilities. *Theory of Probability and its Applications*, **16**(2) (1971): 264–280.
- [146] V. Vapnik and A. Lerner. Pattern recognition using generalized portrait method. *Automation and Remote Control*, **24** (1963).
- [147] J.-P. Vert. Support vector machine prediction of signal peptide cleavage site using a new class of kernels for strings. In R.B. Altman, A.K. Dunker, L. Hunter, K. Lauerdale, and T.E. Klein, editors, *Proceedings of the Pacific Symposium on Biocomputing 2002*. World Scientific, 2002, pp. 649–660.
- [148] J.-P. Vert. A tree kernel to analyze phylogenetic profiles. *Bioinformatics*, **18** (2002): 276–284.
- [149] J.-P. Vert and M. Kanehisa. Graph-driven features extraction from microarray data using diffusion kernels and kernel CCA. In Advances in Neural Information Processing Systems 15. MIT Press, 2003.
- [150] J.-P. Vert, H. Saigo, and T. Akutsu. Convolution and local alignment kernels. In B. Schölkopf, K. Tsuda, and J.-P. Vert, editors, Kernel Methods in Computational Biology. MIT Press, 2004.
- [151] H.D. Vinod. Canonical ridge and econometrics of joint production. J. Econometrics, 4 (1976): 147–166.
- [152] A. Vinokourov, D. Hardoon, J. Shawe-Taylor. Learning the semantics of multimedia content with application to web image retrieval and classification. In Proceedings of Fourth International Symposium on Independent Component Analysis and Blind Source Separation, Nara, 2003.
- [153] A. Vinokourov, J. Shawe-Taylor, and N. Cristianini. Inferring a semantic representation of text via cross-language correlation analysis. In Advances of Neural Information Processing Systems 15. MIT Press, 2002.
- [154] S.V.N. Vishwanathan and A.J. Smola. Fast kernels on strings and trees. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, Advances in Neural Information Processing Systems 14. MIT Press, 2002.
- [155] G. Wahba. Spline Models for Observational Data, volume 59 of CBMS-NSF Regional Conference Series in Applied Mathematics. SIAM, 1990.
- [156] G. Wahba. Support vector machines, reproducing kernel Hilbert spaces and the randomized GACV. In B. Schölkopf, C.J.C. Burges, and A.J. Smola, editors, Advances in Kernel Methods – Support Vector Learning. MIT Press, pp. 69–88.
- [157] C. Watkins. Kernels from matching operations. Technical Report CSD-TR-98-1?, Royal Holloway College, Computer Science Department, July 1999.
- [158] C. Watkins. Dynamic alignment kernels. In A.J. Smola, P.L. Bartlett, B. Schölkopf, and D. Schuurmans, editors, Advances in Large Margin Classifiers. MIT Press, 2002, pp. 39–50.
- [159] D.W. Wichern and R.A. Johnson. Applied Multivariate Statistical Analysis. Prentice Hall, 5th edition, 2002.
- [160] B. Widrow and M. Hoff. Adaptive switching circuits. In IRE WESCON Convention Record, (1960), pp. 96–104.
- [161] C.K.I. Williams. Prediction with Gaussian processes: From linear regression to linear prediction and beyond. In M.I. Jordan, editor, *Learning and Inference* in Graphical Models. Kluwer, 1998.

- [162] H. Wold. Estimation of principal components and related models by iterative least squares. In P.R. Krishnaiah, editor, *Multivariate Analysis*. Academic Press, 1966, pp. 391–420.
- [163] H. Wold. Path models with latent variables: the NIPALS approach. In H.M. Blalock et al., editors, Quantitative Sociology: International Perspectives on Mathematical and Statistical Model Building. Academic Press, 1975, pp. 307–357.
- [164] H. Wold. Soft modeling by latent variables; the nonlinear iterative partial least squares NIPALS approach. Perspectives in Probability and Statistics, 9 (1975): 117–142.
- [165] H. Wold. Partial least squares. In S. Kotz and N.L. Johnson, editors, Encyclopedia of the Statistical Sciences, volume 6. John Wiley & Sons, 1985, pp. 581–591.
- [166] H. Wolkowicz, R. Saigal, and editors L. Vandenberghe. Handbook of Semidefinite Programming. Kluwer, 2001.
- [167] S.K.M. Wong, W. Ziarko, and P.C.N. Wong. Generalized vector space model in information retrieval. In ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR'85). 1985, pp. 18–25.
- [168] Y. Yamanishi, J.-P. Vert, A. Nakaya, and M. Kanehisa. Extraction of correlated gene clusters from multiple genomic data by generalized kernel canonical correlation analysis. *Bioinformatics*, 2003. to appear.
- [169] H. Zha, X. He, C. Ding, M. Gu, and H. Simon. Spectral relaxation for k-means clustering. In T.G. Dietterich, S. Becker, and Z. Ghahramani, editors, Advances in Neural Information Processing Systems 14. MIT Press, 2002, pp. 1057–1064.