Bibliography

Aggarwal, C. C. and Reddy, C. K., editors (2014). *Data Clustering: Algorithms and Applications*. CRC Press.

Albakour, M.-D., Macdonald, C., and Ounis, I. (2015). Using sensor metadata streams to identify topics of local events in the city. In *Proceedings of the 38th International ACM SIGIR Conference on Research and Development in Information Retrieval*, SIGIR '15, pages 711–714, New York, NY, USA. ACM.

Andoni, A. and Indyk, P. (2008). Near-optimal Hashing Algorithms for Approximate Nearest Neighbor in High Dimensions. *Commun. ACM*, 51(1):117–122.

Arun, K. S., Huang, T. S., and Blostein, S. D. (1987). Least-Squares Fitting of Two 3-D Point Sets. *IEEE Trans. Pattern Anal. Mach. Intell.*, 9(5):698–700.

Baluja, S. and Covell, M. (2008). Learning to Hash: Forgiving Hash Functions and Applications. *Data Min. Knowl. Discov.*, 17(3):402–430.

Bawa, M., Condie, T., and Ganesan, P. (2005). LSH Forest: Self-tuning Indexes for Similarity Search. In *Proceedings of the 14th International Conference on World Wide Web*, WWW '05, pages 651–660, New York, NY, USA. ACM.

Bay, S. D. (2000). Multivariate Discretization of Continuous Variables for Set Mining. In *Proceedings of the Sixth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, KDD '00, pages 315–319, New York, NY, USA. ACM.

Bay, S. D. (2001). Multivariate Discretization for Set Mining. *Knowledge and Information Systems*, 3(4):491–512.

Belkin, M. and Niyogi, P. (2003). Laplacian Eigenmaps for Dimensionality Reduction and Data Representation. *Neural Comput.*, 15(6):1373–1396.

Bengio, Y., Paiement, J.-F., Vincent, P., Delalleau, O., Roux, N. L., and Ouimet, M. (2004). Out-of-Sample Extensions for LLE, Isomap, MDS, Eigenmaps, and Spectral Clustering. In *Advances in Neural Information Processing Systems 16*. MIT Press, Cambridge, MA.

Bentley, J. L. (1975). Multidimensional Binary Search Trees Used for Associative Searching. *Commun. ACM*, 18(9):509–517.

Berchtold, S., Böhm, C., Braunmüller, B., Keim, D. A., and Kriegel, H.-P. (1997). Fast Parallel Similarity Search in Multimedia Databases. In *Proceedings of the 1997 ACM SIGMOD International Conference on Management of Data*, SIGMOD '97, pages 1–12, New York, NY, USA. ACM.

Bishop, C. M. (2006). *Pattern Recognition and Machine Learning (Information Science and Statistics)*. Springer-Verlag New York, Inc., Secaucus, NJ, USA.

Blei, D. M., Ng, A. Y., and Jordan, M. I. (2003). Latent Dirichlet Allocation. *J. Mach. Learn. Res.*, 3:993–1022.

Bohr, H. and Brunak, S. (1989). A Travelling Salesman Approach to Protein Conformation. *Complex Syst.*, 3:9–28.

Brassard, G. and Bratley, P. (1996). *Fundamentals of Algorithmics*. Prentice-Hall, Inc., Upper Saddle River, NJ, USA.

Broder, A. (1997). On the Resemblance and Containment of Documents. In *Proceedings of the Compression and Complexity of Sequences 1997*, SEQUENCES '97, pages 21–, Washington, DC, USA. IEEE Computer Society.

Bronstein, M. M., Bronstein, A. M., Michel, F., and Paragios, N. (2010). Data fusion through cross-modality metric learning using similarity-sensitive hashing. *2014 IEEE Conference on Computer Vision and Pattern Recognition*, 0:3594–3601.

Chang, C.-C. and Lin, C.-J. (2011). LIBSVM: A Library for Support Vector Machines. *ACM Trans. Intell. Syst. Technol.*, 2(3):27:1–27:27.

Charikar, M. S. (2002). Similarity Estimation Techniques from Rounding Algorithms. In *Proceedings of the Thiry-fourth Annual ACM Symposium on Theory of Computing*, STOC '02, pages 380–388, New York, NY, USA. ACM.

Chawla, N. V. (2005). Data mining for imbalanced datasets: An overview. In *Data mining and knowledge discovery handbook*, pages 853–867. Springer US.

Chua, T.-S., Tang, J., Hong, R., Li, H., Luo, Z., and Zheng, Y.-T. (2009). NUS-WIDE: A Real-World Web Image Database from National University of Singapore. In *Proc. of ACM Conf. on Image and Video Retrieval (CIVR'09)*, Santorini, Greece.

Chum, O., Philbin, J., and Zisserman, A. (2008). Near Duplicate Image Detection: min-Hash and tf-idf Weighting. In *Proceedings of the British Machine Vision Conference 2008, Leeds, September 2008*, pages 1–10.

Crammer, K., Dekel, O., Keshet, J., Shalev-Shwartz, S., and Singer, Y. (2006). Online Passive-Aggressive Algorithms. *J. Mach. Learn. Res.*, 7:551–585.

Dantzig, G. B. (1957). Discrete-Variable Extremum Problems. *Operations Research*, 5(2):266–277.

Datar, M., Immorlica, N., Indyk, P., and Mirrokni, V. S. (2004). Locality-sensitive Hashing Scheme Based on P-stable Distributions. In *Proceedings of the Twentieth Annual Symposium on Computational Geometry*, SCG '04, pages 253–262, New York, NY, USA. ACM.

Dean, T., Ruzon, M., Segal, M., Shlens, J., Vijayanarasimhan, S., and Yagnik, J. (2013). Fast, Accurate Detection of 100,000 Object Classes on a Single Machine. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, Washington, DC, USA.

Dempster, A., Laird, N., and Rubin, D. (1977). Maximum likelihood from incomplete data via the EM algorithm. *J. Royal Statistical Society, Series B*, 39(1):1–38.

Diaz, F. (2007). Regularizing Query-based Retrieval Scores. *Inf. Retr.*, 10(6):531–562.

Doersch, C., Singh, S., Gupta, A., Sivic, J., and Efros, A. A. (2012). What Makes Paris Look Like Paris? *ACM Trans. Graph.*, 31(4):101:1–101:9.

Dougherty, J., Kohavi, R., and Sahami, M. (1995). Supervised and Unsupervised Discretization of Continuous Features. In *Machine Learning, Proceedings of the Twelfth International Conference on Machine Learning, Tahoe City, California, USA, July 9-12, 1995*, pages 194–202.

Fan, R., Chang, K., Hsieh, C., Wang, X., and Lin, C. (2008). LIBLINEAR: A Library for Large Linear Classification. *Journal of Machine Learning Research*, 9:1871–1874.

Fayyad, U. M. and Irani, K. B. (1993). Multi-Interval Discretization of Continuous-Valued Attributes for Classification Learning. In *Proceedings of the 13th International Joint Conference on Artificial Intelligence. Chambéry, France, August 28 - September 3, 1993*, pages 1022–1029.

Feng, J. (2012). Mobile Product Search with Bag of Hash Bits and Boundary Reranking. In *Proceedings of the 2012 IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, CVPR '12, pages 3005–3012, Washington, DC, USA. IEEE Computer Society.

Finkel, R. A. and Bentley, J. L. (1974). Quad Trees: A Data Structure for Retrieval on Composite Keys. *Acta Inf.*, 4:1–9.

Freitas, A. A. (2002). *Data Mining and Knowledge Discovery with Evolutionary Algorithms*. Springer-Verlag New York, Inc., Secaucus, NJ, USA.

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.

Garcia, S., Luengo, J., Saez, J. A., Lopez, V., and Herrera, F. (2013). A Survey of Discretization Techniques: Taxonomy and Empirical Analysis in Supervised Learning. *IEEE Trans. on Knowl. and Data Eng.*, 25(4):734–750.

Goemans, M. X. and Williamson, D. P. (1995). Improved Approximation Algorithms for Maximum Cut and Satisfiability Problems Using Semidefinite Programming. *J. ACM*, 42(6):1115–1145.

Goldberg, D. E. (1989). *Genetic Algorithms in Search, Optimization and Machine Learning*. Addison-Wesley Longman Publishing Co., Inc., Boston, MA, USA, 1st edition.

Golub, G. H. and Van Loan, C. F. (1996). *Matrix Computations (3rd Ed.)*. Johns Hopkins University Press, Baltimore, MD, USA.

Gong, Y. and Lazebnik, S. (2011). Iterative Quantization: A Procrustean Approach to Learning Binary Codes. In *Proceedings of the 2011 IEEE Conference on Computer*

Vision and Pattern Recognition, CVPR '11, pages 817–824, Washington, DC, USA. IEEE Computer Society.

Grauman, K. and Darrell, T. (2004). Fast Contour Matching Using Approximate Earth Mover's Distance. In *CVPR (1)*, pages 220–227.

Grauman, K. and Darrell, T. (2007). Pyramid Match Hashing: Sub-Linear Time Indexing Over Partial Correspondences. In *2007 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR 2007), 18-23 June 2007, Minneapolis, Minnesota, USA*.

Grauman, K. and Fergus, R. (2013). Learning Binary Hash Codes for Large-Scale Image Search. In Cipolla, R., Battiato, S., and Farinella, G. M., editors, *Machine Learning for Computer Vision*, volume 411 of *Studies in Computational Intelligence*, pages 49–87. Springer Berlin Heidelberg.

Gray, F. (1953). Pulse code communication. US Patent 2,632,058.

Gray, R. M. and Neuhoff, D. L. (2006). Quantization. *IEEE Trans. Inf. Theor.*, 44(6):2325–2383.

Hanson, R. J. and Norris, M. J. (1981). Analysis of Measurements Based on the Singular Value Decomposition. *SIAM Journal on Scientific and Statistical Computing*, 2(3):363–373.

Hardoon, D. R., Szedmak, S., and Shawe-Taylor, J. (2003). Canonical correlation analysis; An overview with application to learning methods. Technical report, Royal Holloway, University of London.

He, K., Wen, F., and Sun, J. (2013). K-Means Hashing: An Affinity-Preserving Quantization Method for Learning Binary Compact Codes. In *Proceedings of the 2013 IEEE Conference on Computer Vision and Pattern Recognition*, CVPR '13, pages 2938–2945, Washington, DC, USA. IEEE Computer Society.

He, X., Cai, D., and Niyogi, P. (2005). Laplacian Score for Feature Selection. In *Advances in Neural Information Processing Systems 18*, pages 507–514.

Hotelling, H. (1933). Analysis of a complex of statistical variables into principal components. *J. Educ. Psych.*, 24.

Indyk, P. and Motwani, R. (1998). Approximate Nearest Neighbors: Towards Removing the Curse of Dimensionality. In *Proceedings of the Thirtieth Annual ACM Symposium on Theory of Computing*, STOC '98, pages 604–613, New York, NY, USA. ACM.

Ingber, L. (1993). Simulated annealing: Practice versus theory. *Mathl. Comput. Modelling*, 18:29–57.

Jegou, H., Douze, M., and Schmid, C. (2011). Product Quantization for Nearest Neighbor Search. *IEEE Trans. Pattern Anal. Mach. Intell.*, 33(1):117–128.

Joachims, T. (2006). Training Linear SVMs in Linear Time. In *Proceedings of the 12th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, KDD '06, pages 217–226, New York, NY, USA. ACM.

Johnson, W. and Lindenstrauss, J. (1984). Extensions of Lipschitz mappings into a Hilbert space. In *Contemp Math 26*.

Katayama, N. and Satoh, S. (1997). The SR-tree: An Index Structure for High-dimensional Nearest Neighbor Queries. In *Proceedings of the 1997 ACM SIGMOD International Conference on Management of Data*, SIGMOD '97, pages 369–380, New York, NY, USA. ACM.

Kerber, R. (1992). ChiMerge: Discretization of Numeric Attributes. In *Proceedings of the Tenth National Conference on Artificial Intelligence*, AAAI'92, pages 123–128. AAAI Press.

Kirkpatrick, S., Gelatt, C. D., and Vecchi, M. P. (1983). Optimization by simulated annealing. *Science*, 220(4598):671–680.

Kokiopoulou, E., Chen, J., and Saad, Y. (2011). Trace optimization and eigenproblems in dimension reduction methods. *Numerical Lin. Alg. with Applic.*, 18(3):565–602.

Kong, W. and Li, W. (2012a). Double-Bit Quantization for Hashing. In *Proceedings of the Twenty-Sixth AAAI Conference on Artificial Intelligence, July 22-26, 2012, Toronto, Ontario, Canada.*

Kong, W. and Li, W. (2012b). Isotropic Hashing. In *Advances in Neural Information Processing Systems 25: 26th Annual Conference on Neural Information Processing Systems 2012. Proceedings of a meeting held December 3-6, 2012, Lake Tahoe, Nevada, United States.*, pages 1655–1663.

Kong, W., Li, W.-J., and Guo, M. (2012). Manhattan Hashing for Large-scale Image Retrieval. In *Proceedings of the 35th International ACM SIGIR Conference on Research and Development in Information Retrieval*, SIGIR '12, pages 45–54, New York, NY, USA. ACM.

Krizhevsky, A. and Hinton, G. (2009). Learning multiple layers of features from tiny images. *Master's thesis, Department of Computer Science, University of Toronto*.

Kulis, B. (2013). Metric Learning: A Survey. *Foundations and Trends in Machine Learning*, 5(4):287–364.

Kulis, B. and Darrell, T. (2009). Learning to Hash with Binary Reconstructive Embeddings. In *Advances in Neural Information Processing Systems 22: 23rd Annual Conference on Neural Information Processing Systems 2009. Proceedings of a meeting held 7-10 December 2009, Vancouver, British Columbia, Canada.*, pages 1042–1050.

Kulis, B. and Grauman, K. (2009). Kernelized locality-sensitive hashing for scalable image search. In *IEEE 12th International Conference on Computer Vision, ICCV 2009, Kyoto, Japan, September 27 - October 4, 2009*, pages 2130–2137.

Kumar, S. and Udupa, R. (2011). Learning Hash Functions for Cross-view Similarity Search. In *Proceedings of the Twenty-Second International Joint Conference on Artificial Intelligence - Volume Volume Two*, IJCAI '11, pages 1360–1365. AAAI Press.

Land, A. H. and Doig, A. G. (1960). An Automatic Method of Solving Discrete Programming Problems. *Econometrica*, 28(3):pp. 497–520.

Lawler, E. L. and Wood, D. E. (1966). Branch-And-Bound Methods: A Survey. *Operations Research*, 14(4):pp. 699–719.

Liu, W., Mu, C., Kumar, S., and Chang, S. (2014). Discrete Graph Hashing. In *Advances in Neural Information Processing Systems 27: Annual Conference on Neural Information Processing Systems 2014, December 8-13 2014, Montreal, Quebec, Canada*, pages 3419–3427.

Liu, W., Wang, J., Ji, R., Jiang, Y., and Chang, S. (2012). Supervised hashing with kernels. In *2012 IEEE Conference on Computer Vision and Pattern Recognition, Providence, RI, USA, June 16-21, 2012*, pages 2074–2081.

Liu, W., Wang, J., Kumar, S., and Chang, S. (2011). Hashing with Graphs. In *Proceedings of the 28th International Conference on Machine Learning, ICML 2011, Bellevue, Washington, USA, June 28 - July 2, 2011*, pages 1–8.

Liu, X., He, J., and Lang, B. (2013). Reciprocal Hash Tables for Nearest Neighbor Search. In *Proceedings of the Twenty-Seventh AAAI Conference on Artificial Intelligence, July 14-18, 2013, Bellevue, Washington, USA*.

Lloyd, S. (1982). Least Square Quantization in PCM. *IEEE Trans. Inform. Theory*, 28:129–137.

Lowe, D. G. (2004). Distinctive Image Features from Scale-Invariant Keypoints. *Int. J. Comput. Vision*, 60(2):91–110.

Manning, C. D., Raghavan, P., and Schütze, H. (2008). *Introduction to Information Retrieval*. Cambridge University Press, New York, NY, USA.

Martello, S. and Toth, P. (1990). *Knapsack Problems: Algorithms and Computer Implementations*. John Wiley & Sons, Inc., New York, NY, USA.

Matei, B., Shan, Y., Sawhney, H. S., Tan, Y., Kumar, R., Huber, D., and Hebert, M. (2006). Rapid Object Indexing Using Locality Sensitive Hashing and Joint 3D-Signature Space Estimation. *IEEE Trans. Pattern Anal. Mach. Intell.*, 28(7):1111–1126.

Mehta, S., Parthasarathy, S., and Yang, H. (2005). Toward Unsupervised Correlation Preserving Discretization. *IEEE Trans. on Knowl. and Data Eng.*, 17(9):1174–1185.

Minsky, M. and Papert, S. (1969). *Perceptrons*. MIT Press, Cambridge, MA.

Moran, S. (2016). Learning to Project and Binarise for Hashing-Based Approximate Nearest Neighbour Search. In *Proceedings of the 39th International ACM SIGIR Conference on Research and Development in Information Retrieval*, SIGIR '16.

Moran, S. and Lavrenko, V. (2014). Sparse Kernel Learning for Image Annotation. In *Proceedings of International Conference on Multimedia Retrieval*, ICMR '14, pages 113:113–113:120, New York, NY, USA. ACM.

Moran, S. and Lavrenko, V. (2015a). Graph Regularised Hashing. In *Advances in Information Retrieval - 37th European Conference on IR Research, ECIR 2015, Vienna, Austria, March 29 - April 2, 2015. Proceedings*, pages 135–146.

Moran, S. and Lavrenko, V. (2015b). Regularised Cross-Modal Hashing. In *Proceedings of the 38th International ACM SIGIR Conference on Research and Development in Information Retrieval*, SIGIR '15, pages 907–910. ACM.

Moran, S., Lavrenko, V., and Osborne, M. (2013a). Neighbourhood Preserving Quantisation for LSH. In *Proceedings of the 36th International ACM SIGIR Conference on Research and Development in Information Retrieval*, SIGIR '13, pages 1009–1012, New York, NY, USA. ACM.

Moran, S., Lavrenko, V., and Osborne, M. (2013b). Variable Bit Quantisation for LSH. In *Proceedings of the 51st Annual Meeting of the Association for Computational Linguistics, ACL 2013, 4-9 August 2013, Sofia, Bulgaria, Volume 2: Short Papers*, pages 753–758.

Murphy, K. P. (2012). *Machine Learning: A Probabilistic Perspective*. The MIT Press.

Oliva, A. and Torralba, A. (2001). Modeling the Shape of the Scene: A Holistic Representation of the Spatial Envelope. *Int. J. Comput. Vision*, 42(3):145–175.

Osborne, M., Moran, S., McCreadie, R., von Lünen, A., Sykora, M. D., Cano, A. E., Ireson, N., Macdonald, C., Ounis, I., He, Y., Jackson, T., Ciravegna, F., and O'Brien, A. (2014). Real-Time Detection, Tracking, and Monitoring of Automatically Discovered Events in Social Media. In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics, ACL 2014, June 22-27, 2014, Baltimore, MD, USA, System Demonstrations*, pages 37–42.

Petrovic, S. (2012). *Real-Time Event Detection in Massive Streams*. PhD thesis, University of Edinburgh.

Petrović, S., Osborne, M., and Lavrenko, V. (2010). Streaming First Story Detection with Application to Twitter. In *Human Language Technologies: The 2010 Annual Conference of the North American Chapter of the Association for Computational Linguistics*, HLT '10, pages 181–189, Stroudsburg, PA, USA. Association for Computational Linguistics.

Raginsky, M. and Lazebnik, S. (2009). Locality-sensitive binary codes from shift-invariant kernels. In *Advances in Neural Information Processing Systems 22: 23rd Annual Conference on Neural Information Processing Systems 2009. Proceedings of*

a meeting held 7-10 December 2009, Vancouver, British Columbia, Canada., pages 1509–1517.

Rahimi, A. and Recht, B. (2007). Random features for large-scale kernel machines. In *Advances in Neural Information Processing Systems 20, Proceedings of the Twenty-First Annual Conference on Neural Information Processing Systems, Vancouver, British Columbia, Canada, December 3-6, 2007*, pages 1177–1184.

Rajaraman, A. and Ullman, J. D. (2011). *Mining of Massive Datasets*. Cambridge University Press, New York, NY, USA.

Rasiwasia, N., Costa Pereira, J., Coviello, E., Doyle, G., Lanckriet, G., Levy, R., and Vasconcelos, N. (2010). A New Approach to Cross-Modal Multimedia Retrieval. In *ACM International Conference on Multimedia*, pages 251–260.

Rasiwasia, N., Mahajan, D., Mahadevan, V., and Aggarwal, G. (2014). Cluster Canonical Correlation Analysis. In *Proceedings of International Conference on Artificial Intelligence and Statistics*.

Rastegari, M., Choi, J., Fakhraei, S., III, H. D., and Davis, L. S. (2013). Predictable dual-view hashing. In *Proceedings of the 30th International Conference on Machine Learning, ICML 2013, Atlanta, GA, USA, 16-21 June 2013*, pages 1328–1336.

Ravichandran, D., Pantel, P., and Hovy, E. (2005). Randomized Algorithms and NLP: Using Locality Sensitive Hash Function for High Speed Noun Clustering. In *Proceedings of the 43rd Annual Meeting on Association for Computational Linguistics*, ACL '05, pages 622–629, Stroudsburg, PA, USA. Association for Computational Linguistics.

Rijsbergen, C. J. V. (1979). *Information Retrieval*. Butterworth-Heinemann, Newton, MA, USA, 2nd edition.

Russell, B. C., Torralba, A., Murphy, K. P., and Freeman, W. T. (2008). LabelMe: A Database and Web-Based Tool for Image Annotation. *Int. J. Comput. Vision*, 77(1-3):157–173.

Saad, Y., editor (2011). *Numerical Methods for Large Eigenvalue Problems, 2nd revised edition*. SIAM.

Schapire, R. E. and Freund, Y. (2012). *Boosting: Foundations and Algorithms*. The MIT Press.

Schönemann, P. (1966). A generalized solution of the orthogonal procrustes problem. *Psychometrika*, 31(1):1–10.

Sebastiani, F. (2002). Machine Learning in Automated Text Categorization. *ACM Comput. Surv.*, 34(1):1–47.

Shakhnarovich, G., Darrell, T., and Indyk, P. (2006). *Nearest-Neighbor Methods in Learning and Vision: Theory and Practice (Neural Information Processing)*. The MIT Press.

Shakhnarovich, G., Viola, P., and Darrell, T. (2003). Fast Pose Estimation with Parameter-Sensitive Hashing. In *Proceedings of the Ninth IEEE International Conference on Computer Vision - Volume 2*, ICCV '03, pages 750–, Washington, DC, USA. IEEE Computer Society.

Shalev-Shwartz, S., Singer, Y., and Srebro, N. (2007). Pegasos: Primal Estimated sub-GrAdient SOlver for SVM. In *Proceedings of the 24th International Conference on Machine Learning*, ICML '07, pages 807–814, New York, NY, USA. ACM.

Shen, F., Shen, C., Liu, W., and Tao Shen, H. (2015). Supervised Discrete Hashing. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 37–45.

Shi, J. and Malik, J. (2000). Normalized Cuts and Image Segmentation. *IEEE Trans. Pattern Anal. Mach. Intell.*, 22(8):888–905.

Smeulders, A. W. M., Worring, M., Santini, S., Gupta, A., and Jain, R. (2000). Content-Based Image Retrieval at the End of the Early Years. *IEEE Trans. Pattern Anal. Mach. Intell.*, 22(12):1349–1380.

Smucker, M. D., Allan, J., and Carterette, B. (2007). A Comparison of Statistical Significance Tests for Information Retrieval Evaluation. In *Proceedings of the Sixteenth ACM Conference on Conference on Information and Knowledge Management*, CIKM '07, pages 623–632, New York, NY, USA. ACM.

Song, J., Yang, Y., Yang, Y., Huang, Z., and Shen, H. T. (2013). Inter-media Hashing for Large-scale Retrieval from Heterogeneous Data Sources. In *Proceedings of the*

2013 ACM SIGMOD International Conference on Management of Data, SIGMOD '13, pages 785–796, New York, NY, USA. ACM.

Szu, H. and Hartley, R. (1987). Fast simulated annealing. *Physics Letters A*, 122(3-4):157 – 162.

Terasawa, K. and Tanaka, Y. (2007). Spherical LSH for Approximate Nearest Neighbor Search on Unit Hypersphere. In Dehne, F., Sack, J.-R., and Zeh, N., editors, *Algorithms and Data Structures*, volume 4619 of *Lecture Notes in Computer Science*, pages 27–38. Springer Berlin Heidelberg.

Torralba, A., Fergus, R., and Weiss, Y. (2008). Small codes and large image databases for recognition. In *2008 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR 2008), 24-26 June 2008, Anchorage, Alaska, USA*.

Ture, F., Elsayed, T., and Lin, J. (2011). No Free Lunch: Brute Force vs. Locality-sensitive Hashing for Cross-lingual Pairwise Similarity. In *Proceedings of the 34th International ACM SIGIR Conference on Research and Development in Information Retrieval*, SIGIR '11, pages 943–952, New York, NY, USA. ACM.

Turpin, A. and Scholer, F. (2006). User Performance Versus Precision Measures for Simple Search Tasks. In *Proceedings of the 29th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval*, SIGIR '06, pages 11–18, New York, NY, USA. ACM.

Ulz, M. H. and Moran, S. J. (2013). Optimal kernel shape and bandwidth for atomistic support of continuum stress. *Modelling and Simulation in Materials Science and Engineering*, 21(8):085017.

van der Maaten, L. and Hinton, G. E. (2008). Visualizing High-Dimensional Data Using t-SNE. *Journal of Machine Learning Research*, 9:2579–2605.

Wang, J., Kumar, O., and Chang, S. (2010a). Semi-supervised hashing for scalable image retrieval. In *The Twenty-Third IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2010, San Francisco, CA, USA, 13-18 June 2010*, pages 3424–3431.

Wang, J., Kumar, S., and Chang, S. (2010b). Sequential Projection Learning for Hashing with Compact Codes. In *Proceedings of the 27th International Conference on Machine Learning (ICML-10), June 21-24, 2010, Haifa, Israel*, pages 1127–1134.

Wang, J., Kumar, S., and Chang, S.-F. (2012). Semi-Supervised Hashing for Large-Scale Search. *IEEE Trans. Pattern Anal. Mach. Intell.*, 34(12):2393–2406.

Wang, J., Shen, H. T., Song, J., and Ji, J. (2014). Hashing for Similarity Search: A Survey. *CoRR*, abs/1408.2927.

Wang, Z., Duan, L.-Y., Lin, J., Wang, X., Huang, T., and Gao, W. (2015). Hamming Compatible Quantization for Hashing. In *Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence*, IJCAI '15.

Weber, R., Schek, H.-J., and Blott, S. (1998). A Quantitative Analysis and Performance Study for Similarity-Search Methods in High-Dimensional Spaces. In *Proceedings of the 24rd International Conference on Very Large Data Bases*, VLDB '98, pages 194–205, San Francisco, CA, USA. Morgan Kaufmann Publishers Inc.

Weiss, Y., Torralba, A., and Fergus, R. (2008). Spectral Hashing. In *Advances in Neural Information Processing Systems 21, Proceedings of the Twenty-Second Annual Conference on Neural Information Processing Systems, Vancouver, British Columbia, Canada, December 8-11, 2008*, pages 1753–1760.

Wilcoxon, F. (1945). Individual Comparisons by Ranking Methods. *Biometrics Bulletin*, 1(6):80–83.

Williams, C. K. I. and Seeger, M. (2001). Using the Nyström Method to Speed Up Kernel Machines. In Leen, T., Dietterich, T., and Tresp, V., editors, *Advances in Neural Information Processing Systems 13*, pages 682–688. MIT Press.

Wu, B., Yang, Q., Zheng, W.-S., Wang, Y., and Wang, J. (2015). Quantized Correlation Hashing for Fast Cross-modal Search. In *Proceedings of the 24th International Conference on Artificial Intelligence*, IJCAI '15, pages 3946–3952. AAAI Press.

Xu, D., Cham, T. J., Yan, S., Duan, L., and Chang, S.-F. (2010). Near Duplicate Identification With Spatially Aligned Pyramid Matching. *IEEE Transactions on Circuits and Systems for Video Technology*, 20:1068–1079.

Xu, H., Wang, J., Li, Z., Zeng, G., Li, S., and Yu, N. (2011). Complementary Hashing for Approximate Nearest Neighbor Search. In *Proceedings of the 2011 International Conference on Computer Vision*, ICCV '11, pages 1631–1638, Washington, DC, USA. IEEE Computer Society.

Yang, Y. and Webb, G. I. (2009). Discretization for naive-Bayes Learning: Managing Discretization Bias and Variance. *Mach. Learn.*, 74(1):39–74.

Yuille, A. L. and Rangarajan, A. (2003). The Concave-convex Procedure. *Neural Comput.*, 15(4):915–936.

Zanzotto, F. M., Pennacchiotti, M., and Tsioutsiouliklis, K. (2011). Linguistic Redundancy in Twitter. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing*, EMNLP '11, pages 659–669, Stroudsburg, PA, USA. Association for Computational Linguistics.

Zhang, D., Wang, J., Cai, D., and Lu, J. (2010a). Extensions to Self-Taught Hashing: Kernelisation and Supervision. In *Proceedings of the Feature Generation and Selection for Information Retrieval Workshop*, SIGIR '10.

Zhang, D., Wang, J., Cai, D., and Lu, J. (2010b). Self-taught Hashing for Fast Similarity Search. In *Proceedings of the 33rd International ACM SIGIR Conference on Research and Development in Information Retrieval*, SIGIR '10, pages 18–25, New York, NY, USA. ACM.

Zhang, K., Lan, L., Wang, Z., and Moerchen, F. (2012). Scaling up Kernel SVM on Limited Resources: A Low-rank Linearization Approach. In *Proceedings of the Fifteenth International Conference on Artificial Intelligence and Statistics, AISTATS 2012, La Palma, Canary Islands, April 21-23, 2012*, pages 1425–1434.

Zhen, Y. and Yeung, D. (2012). Co-Regularized Hashing for Multimodal Data. In *Advances in Neural Information Processing Systems 25: 26th Annual Conference on Neural Information Processing Systems 2012. Proceedings of a meeting held December 3-6, 2012, Lake Tahoe, Nevada, United States.*, pages 1385–1393.

Zhu, H., Long, M., Wang, J., and Cao, Y. (2016). Deep Hashing Network for Efficient Similarity Retrieval. In *Association for the Advancement of Artificial Intelligence*, AAAI16. AAAI Press.

Zhu, X. and Ghahramani, Z. (2002). Learning from Labeled and Unlabeled Data with Label Propagation. Technical report, Technical Report CMU-CALD-02-107, Carnegie Mellon University.