

# Bibliography

- [1] P. Agarwal, S. Har-Peled, M. Sharir, and Y. Wang. Hausdorff distance under translation for points, disks, and balls. Manuscript, 2002.
- [2] P. Agarwal and M. Sharir. Pipes, cigars, and kreplach: The union of Minkowski sums in three dimensions. *Discrete Comput. Geom.*, 24:645–685, 2000.
- [3] P. K. Agarwal, O. Schwarzkopf, and Micha Sharir. The overlay of lower envelopes and its applications. *Discrete Comput. Geom.*, 15:1–13, 1996.
- [4] Pankaj K. Agarwal. Efficient techniques in geometric optimization: An overview, 1999. slides.
- [5] Pankaj K. Agarwal and Micha Sharir. Motion planning of a ball amid segments in three dimensions. In *Proc. 10th ACM-SIAM Sympos. Discrete Algorithms*, pages 21–30, 1999.
- [6] Pankaj K. Agarwal and Micha Sharir. Pipes, cigars, and kreplach: The union of Minkowski sums in three dimensions. In *Proc. 15th Annu. ACM Sympos. Comput. Geom.*, pages 143–153, 1999.
- [7] Pankaj K. Agarwal, Micha Sharir, and Sivan Toledo. Applications of parametric searching in geometric optimization. *Journal of Algorithms*, 17:292–318, 1994.
- [8] Pankaj Kumar Agarwal and Micha Sharir. Arrangements and their applications. In J.-R. Sack and J. Urrutia, editors, *Handbook of Computational Geometry*, pages 49–120. Elsevier, 1999.
- [9] H. Alt, O. Aichholzer, and Günter Rote. Matching shapes with a reference point. *Internat. J. Comput. Geom. Appl.*, 7:349–363, 1997.
- [10] H. Alt and M. Godau. Computing the Fréchet distance between two polygonal curves. *Internat. J. Comput. Geom. Appl.*, 5:75–91, 1995.
- [11] H. Alt, K. Mehlhorn, H. Wagener, and Emo Welzl. Congruence, similarity and symmetries of geometric objects. *Discrete Comput. Geom.*, 3:237–256, 1988.
- [12] Helmut Alt, Bernd Behrends, and Johannes Blömer. Approximate matching of polygonal shapes. *Ann. Math. Artif. Intell.*, 13:251–266, 1995.
- [13] Helmut Alt, Peter Braß, Michael Godau, Christian Knauer, and Carola Wenk. Computing the Hausdorff distance of geometric patterns and shapes. *Discrete and Computational Geometry - The Goodman-Pollack-Festschrift*, 2002.

- [14] Helmut Alt, Alon Efrat, Günter Rote, and Carola Wenk. Matching planar maps. In *Proc. 14th ACM-SIAM Symp. on Discrete Algorithms (SODA)*, 2003.
- [15] Helmut Alt and Leonidas Guibas. Discrete geometric shapes: Matching, interpolation, and approximation - a survey. In J.-R. Sack and J. Urrutia, editors, *Handbook of Computational Geometry*, pages 121–154. Elsevier, 1999.
- [16] Helmut Alt, Christian Knauer, and Carola Wenk. Bounding the Fréchet distance by the Hausdorff distance. In *Proc. 17th European Workshop on Computational Geometry*, pages 166–169, 2001.
- [17] Helmut Alt, Christian Knauer, and Carola Wenk. Matching polygonal curves with respect to the Fréchet distance. In *Proc. 18th Int. Symp. Theoretical Aspects of Computer Science (STACS)*, pages 63–74, 2001.
- [18] Helmut Alt, Christian Knauer, and Carola Wenk. Comparison of distance measures for planar curves. *Algorithmica, Special Issue on Shape Algorithmics*, 2003. To appear.
- [19] N. Amenta. Bounded boxes, Hausdorff distance, and a new proof of an interesting Helly theorem. In *Proc. 10th Annu. ACM Sympos. Comput. Geom.*, pages 340–347, 1994.
- [20] B. Aronov and M. Sharir. On translational motion planning of a convex polyhedron in 3-space. *SIAM Journal on Computing*, 26:1785–1803, 1997.
- [21] B. Aronov, M. Sharir, and B. Tagansky. The union of convex polyhedra in three dimension. *SIAM Journal on Computing*, 26:1670–1688, 1997.
- [22] Boris Aronov and Micha Sharir. On translational motion planning in 3-space. In *Proc. 10th Annu. ACM Sympos. Comput. Geom.*, pages 21–30, 1994.
- [23] S. Arya, D.M. Mount, N.S. Netanyahu, R. Silverman, and A. Wu. An optimal algorithm for approximate nearest neighbor searching. In *Proc. 5th ACM-SIAM Symp. on Discrete Algorithms (SODA)*, 1994.
- [24] S. Basu. *Algorithms in Semi-algebraic Geometry*. PhD thesis, Dept. Computer Science, New York University, 1996.
- [25] S. Basu, R. Pollack, and M.-F. Roy. A new algorithm to find a point in every cell defined by a family of polynomials. In B. Caviness and J. Johnson, editors, *Quantifier Elimination and Cylindrical Algebraic Decomposition*. Springer-Verlag, 1995.
- [26] S. Basu, R. Pollack, and M.-F. Roy. On computing a set of points meeting every semi-algebraically connected component of a family of polynomials on a variety, 1996.
- [27] S. Basu, R. Pollack, and M.-F. Roy. On the combinatorial and algebraic complexity of quantifier elimination. *Journal of the ACM*, 43(6):1002–1045, 1996.
- [28] S. Basu, R. Pollack, and M.-F. Roy. Computing roadmaps of semi-algebraic sets on a variety. *Journal of the ACM*, 13(1):55–82, 1999.
- [29] Marcel Berger. *Geometry I*. Universitext. Springer, 1994.

- [30] Marcel Berger. *Geometry II*. Universitext. Springer, 1996.
- [31] J. Bochnak, M. Coste, and M.-F. Roy. *Real Algebraic Geometry*, volume 36 of *Ergebnisse der Mathematik und ihrer Grenzgebiete*. Springer, 1998.
- [32] Böhm and Hertel. *Polyedergeometrie in n-dimensionalen Räumen konstanter Krümmung*. Birkhuser Verlag, 1981.
- [33] J.-D. Boissonnat and M. Yvinec. *Algorithmic Geometry*. Cambridge University Press, 1998.
- [34] T. M. Chan. Geometric applications of a randomized optimization technique. *Discrete Comput. Geom.*, 22(4):547–567, 1999.
- [35] B. Chazelle and J. Friedman. Point location among hyperplanes und unidirectional ray shooting. *Computational Geometry: Theory and Applications*, 4:53–62, 1994.
- [36] L. P. Chew, M. T. Goodrich, D. P. Huttenlocher, K. Kedem, J. M. Kleinberg, and D. Kravets. Geometric pattern matching under Euclidean motion. *Comput. Geom. Theory Appl.*, 7:113–124, 1997.
- [37] L. Paul Chew and Klara Kedem. Improvements on geometric pattern matching problems. In O. Nurmi and E. Ukkonen, editors, *Algorithm Theory—SWAT '92: Third Scandinavian Workshop on Algorithm Theory*, volume 621 of *Lecture Notes in Computer Science*, pages 318–325, Helsinki, Finland, 8–10 July 1992. Springer-Verlag.
- [38] L.P. Chew, D. Dor, A. Efrat, and K. Kedem. Geometric pattern matching in d-dimensional space. *Discrete & Computational Geometry*, 21:257–274, 1999.
- [39] R. Cole. Slowing down sorting networks to obtain faster sorting algorithms. *Journal of the ACM*, 34(1):200–208, 1987.
- [40] H. Edelsbrunner. *Algorithms in Combinatorial Geometry*. Springer-Verlag, 1987.
- [41] Herbert Edelsbrunner, Leonidas Guibas, and Micha Sharir. The upper envelope of piecewise linear functions: Algorithms and applications. *Discrete & Computational Geometry*, 4:311–336, 1989.
- [42] Alon Efrat, Piotr Indyk, and Suresh Venkatasubramanian. Pattern matching for sets of segments. In *Proc. 12th ACM-SIAM Sympos. Discrete Algorithms*, 2001.
- [43] GMP. The GNU multiple precision library. <http://www.swox.com/gmp/>.
- [44] Michael Godau. Die Fréchet-Metrik für Polygonzüge – Algorithmen zur Abstandsmessung und Approximation. Master’s thesis, Freie Universität Berlin, 1991. Diplomarbeit.
- [45] Michael Godau. *On the complexity of measuring the similarity between geometric objects in higher dimensions*. PhD thesis, Freie Universität Berlin, 1998.
- [46] M. T. Goodrich, Joseph S. B. Mitchell, and M. W. Orletsky. Approximate geometric pattern matching under rigid motions. In *Proc. IEEE Trans. Pattern Anal. Machine Intell.*, pages 371–379, 1999.

- [47] Michael T. Goodrich. Constructing arrangements optimally in parallel. *Discrete & Computational Geometry*, 9:371–385, 1993.
- [48] B. Grünbaum. *Convex Polytopes*. Interscience Publishers, John Wiley & Sons, 1967.
- [49] Leonidas J. Guibas, L. Ramshaw, and J. Stolfi. A kinetic framework for computational geometry. In *Proc. 24th Annu. IEEE Sympos. Found. Comput. Sci.*, pages 100–111, 1983.
- [50] Dan Gusfield. *Algorithms on Strings, Trees, and Sequences*. Cambridge University Press, 1997.
- [51] M. Henk, J. Richter-Gebert, and G. Ziegler. Basic properties of convex polytopes. In Jacob E. Goodman and Joseph O’Rourke, editors, *Discrete and Computational Geometry*, pages 243–270. CRC Press, 1997.
- [52] D.S. Hirschberg. Algorithms for the longest common subsequence problem. *Journal of the ACM*, 24:664–675, 1977.
- [53] Daniel P. Huttenlocher, Klara Kedem, and Micha Sharir. The upper envelope of Voronoi surfaces and its applications. *Discrete & Computational Geometry*, 9:267–291, 1993.
- [54] M. J. Katz and Micha Sharir. An expander-based approach to geometric optimization. *SIAM J. Comput.*, 26:1384–1408, 1997.
- [55] Klara Kedem, Ron Livne, Janos Pach, and Micha Sharir. On the union of jordan regions and collision-free translational motion amidst polygonal obstacles. *Discrete Comput. Geom.*, 1, 1986.
- [56] Christian Knauer. *Algorithms for Comparing Geometric Patterns*. PhD thesis, Freie Universität Berlin, Germany, 2002.
- [57] V. Koltun and C. Wenk. On the overlay of envelopes of piecewise linear functions and the matching of polyhedral terrains, 2003. manuscript.
- [58] Vladlen Koltun and Micha Sharir. On the overlay of envelopes in four dimensions. In *Proc. 13th ACM-SIAM Sympos. Discrete Algorithms*, pages 810–819, 2002.
- [59] Vladlen Koltun and Micha Sharir. The partition technique for overlays of envelopes. In *to appear in Proc. 43rd Annual IEEE Symposium on Foundations of Computer Science (FOCS)*, 2002.
- [60] J.-C. Latombe. *Robot Motion Planning*. Kluwer Academic Publishers, Boston, 1991.
- [61] C.W. Lee. Subdivisions and triangulations of polytopes. In Jacob E. Goodman and Joseph O’Rourke, editors, *Discrete and Computational Geometry*, pages 271–290. CRC Press, 1997.
- [62] N. Megiddo. Applying parallel computation algorithms in the design of serial algorithms. *J. ACM*, 30(4):852–865, 1983.
- [63] H. Poincaré. Sur la généralisation d’un théorème élémentaire de géométrie. *Comptes rendus de l’Académie des Sciences*, 140:113–117, 1905.

- [64] Günter Rote. Computing the minimum Hausdorff distance between two point sets on a line under translation. *Information Processing Letters*, 38:123–127, 1991.
- [65] W. J. Rucklidge. Lower bounds for the complexity of the graph of the Hausdorff distance as a function of transformation. *Discrete & Computational Geometry*, 16:135–153, 1996.
- [66] R. Seidel. Small-dimensional linear programming and convex hulls made easy. *Discrete Comput. Geom.*, 6:423–434, 1991.
- [67] Micha Sharir and Pankaj K. Agarwal. *Davenport-Schinzel Sequences and Their Geometric Applications*. Cambridge University Press, 1995.
- [68] D.M.Y. Sommerville. *An Introduction to the Geometry of N Dimensions*. Dover Publications, Inc., 1958.
- [69] J. Sprinzak and M. Werman. Affine point matching. *Pattern Recogn. Lett.*, 15:337–339, 1994.
- [70] René van Oostrum and Remco C. Veltkamp. Parametric search made practical. In *Proc. 18th Annu. ACM Sympos. Comput. Geom.*, pages 1–9, 2002.
- [71] Remco Veltkamp and Michiel Hagedoorn. Shape similarity measures, properties, and constructions. Technical Report UU-CS-2000-37, Dept. Comput. Sci., Univ. Utrecht, Utrecht, Netherlands, 2000.
- [72] Suresh Venkatasubramanian. *Geometric Shape Matching and Drug Design*. PhD thesis, Dept. Computer Science, Stanford University, 2000.

