Bibliography

[1] P. K. Agarwal and J. Matoušek. Ray shooting and parametric search. *SIAM J. Comput.*, 22(4):794–806, 1993.

[2] H. Alt, B. Behrends, and J. Blömer. Approximate matching of polygonal shapes. *Ann. Math. Artif. Intell.*, 13:251–266, 1995.

[3] H. Alt, J. Blömer, M. Godau, and H. Wagener. Approximation of convex polygons. In *Proc. 17th Internat. Colloq. Automata Lang. Program.*, volume 443 of *Lecture Notes Comput. Sci.*, pages 703–716. Springer-Verlag, 1990.

[4] H. Alt, P. Braß, M. Godau, C. Knauer, and C. Wenk. Computing the Hausdorff distance of geometric patterns and shapes. In B. Aronov, S. Basu, J. Pach, and M. Sharir, editors, *Discrete and Computational Geometry. The Goodman–Pollack Festschrift*, volume 25 of *Algorithms and Combinatorics*, pages 65–76. Springer-Verlag, 2003.

[5] H. Alt, A. Efrat, G. Rote, and C. Wenk. Matching planar maps. *J. Algorithms*, pages 262–283, 2003.

[6] H. Alt and M. Godau. Computing the Fréchet distance between two polygonal curves. *Internat. J. Comput. Geom. Appl.*, 5:75–91, 1995.

[7] H. Alt and L. Guibas. Discrete geometric shapes: Matching, interpolation, and approximation. In J.-R. Sack and J. Urrutia, editors, *Handbook of Computational Geometry*, pages 121–153. Elsevier, 1999.

[8] H. Alt, C. Knauer, and C. Wenk. Matching polygonal curves with respect to the Fréchet distance. In *Proc. 18th Sympos. Theoret. Aspects Comput. Sci.*, volume 2010 of *Lecture Notes Comput. Sci.*, pages 63–74. Springer-Verlag, 2001.

[9] H. Alt, C. Knauer, and C. Wenk. Comparison of distance measures for planar curves. *Algorithmica*, 38(1):45–58, 2004. Special Issue on Shape Algorithmics.

[10] K. Ambos-Spies, K. Weihrauch, and X. Zheng. Weakly computable real numbers. *J. Complexity*, 16(4):676–690, 2000.

[11] B. Aronov, S. Har-Peled, C. Knauer, Y. Wang, and C. Wenk. Fréchet distance for curves, revisited. In *Proc. 14th Annu. European Sympos. Algorithms*, volume 4168 of *Lecture Notes Comput. Sci.*, pages 52–63. Springer-Verlag, 2006.

[12] M. J. Atallah. A linear time algorithm for the Hausdorff distance between convex polygons. *Inform. Process. Lett.*, 17:207–209, 1983.

[13] S. Brakatsoulas, D. Pfoser, R. Salas, and C. Wenk. On map-matching vehicle tracking data. In *Proc. 31st Int. Conf. on Very Large Data Bases*, pages 853–864. ACM Press, 2005.

[14] G. E. Bredon. *Topology and Geometry*, volume 139 of *Graduate Texts in Mathematics*. Springer-Verlag, 2nd edition, 1995.

[15] K. Buchin, M. Buchin, C. Knauer, G. Rote, and C. Wenk. How difficult is it to walk the dog? To appear in Proc. 23rd European Workshop Comput. Geom.

[16] K. Buchin, M. Buchin, and C. Wenk. Computing the Fréchet distance between simple polygons in polynomial time. In *Proc. 22nd Annu. ACM Sympos. Comput. Geom.*, pages 80–87. ACM Press, 2006.

[17] R. Cole. Slowing down sorting networks to obtain faster sorting algorithms. *J. ACM*, 34(1):200–208, 1987.

[18] D. Coppersmith and S. Winograd. Matrix multiplication via arithmetic progressions. *J. of Symbolic Computation*, 9:251–280, 1990.

[19] A. Dumitrescu and G. Rote. On the Fréchet distance of a set of curves. In *Proc. 16th Canad. Conf. Comput. Geom.*, pages 162 – 165, 2004.

[20] A. Efrat, Q. Fan, and S. Venkatasubramanian. Curve matching, time warping, and light fields: New algorithms for computing similarity between curves. *J. Math. Imaging and Vision*, to appear.

[21] A. Efrat, P. Indyk, and S. Venkatasubramanian. Pattern matching for sets of segments. *Algorithmica*, 40(3):147–160, 2004.

[22] T. Eiter and H. Mannila. Computing discrete Fréchet distance. Technical Report CD-TR 94/65, Christian Doppler Laboratory, 1994.

[23] I. Z. Emiris and E. P. Tsigaridas. Comparing real algebraic numbers of small degree. In *Proc. 12th Annu. European Sympos. Algorithms*, volume 3221 of *Lecture Notes Comput. Sci.*, pages 652–663. Springer-Verlag, 2004.

[24] R. Fagin and L. Stockmeyer. Relaxing the triangle inequality in pattern matching. *Int. J. Comput. Vision*, 30(3):219–231, 1998.

[25] M. Fréchet. Sur quelques points du calcul fonctionnel. *Rendiconti Circ. Mat. Palermo*, 22:1–74, 1906.

[26] M. Fréchet. Sur la distance de deux surfaces. *Ann. Soc. Polonaise Math.*, 3:4–19, 1924.

[27] A. Gajentaan and M. H. Overmars. On a class of $O(n^2)$ problems in computational geometry. *Comput. Geom. Theory Appl.*, 5:165–185, 1995.

[28] M. Godau. Die Fréchet-Metrik für Polygonzüge – Algorithmen zur Abstandsmessung und Approximation. Master's thesis, Freie Universität Berlin, Germany, 1991.

[29] M. Godau. *On the complexity of measuring the similarity between geometric objects in higher dimensions.* PhD thesis, Freie Universität Berlin, Germany, 1998.

[30] L. Guibas, J. Hershberger, D. Leven, M. Sharir, and R. Tarjan. Linear time algorithms for visibility and shortest path problems inside simple polygons. In *Proc. 2nd Annu. ACM Sympos. Comput. Geom.*, pages 1–13. ACM Press, 1986.

[31] U. Hahn, N. Chater, and L. B. C. Richardson. Similarity as transformation. *Cognition*, 87:1–32, 2003.

[32] P. Indyk. Approximate nearest neighbor algorithms for Frechet distance via product metrics. In *Proc. 18th Annu. ACM Sympos. Comput. Geom.*, pages 102–106. ACM Press, 2002.

[33] M. Jiang, Y. Xu, and B. Zhu. Protein structure-structure alignment with the discrete Fréchet distance. In *Proc. 5th Asia-Pacific Bioinf. Conf.*, pages 131–141, 2007.

[34] J. M. Keil. Polygon decomposition. In J.-R. Sack and J. Urrutia, editors, *Handbook of Computational Geometry*, pages 491–518. Elsevier, 2000.

[35] J. M. Keil and J. Snoeyink. On the time bound for convex decomposition of simple polygons. *Int. J. Comput. Geometry Appl.*, 12(3):181–192, 2002.

[36] C. Knauer. *Algorithms for Comparing Geometric Patterns*. PhD thesis, Freie Universität Berlin, Germany, 2002.

[37] K.-I. Ko. *Complexity Theory of Real Functions*. Birkhäuser, 1991.

[38] V. J. López. An elementary solution to the mountain climbers' problem. *Aequationes Math.*, 57(1):45–49, 1999.

[39] N. Megiddo. Applying parallel computation algorithms in the design of serial algorithms. *J. ACM*, 30(4):852–865, 1983.

[40] E. E. Moise. *Geometric Topology in Dimensions 2 and 3*, volume 47 of *Graduate Texts in Mathematics*. Springer-Verlag, 1977.

[41] A. Mosig and M. Clausen. Approximately matching polygonal curves with respect to the Fréchet distance. *Comput. Geom. Theory Appl.*, 30(2):113–127, 2005.

[42] B. Mourrain, S. Pion, S. Schmitt, J.-P. Técourt, E. Tsigaridas, and N. Wolpert. Algebraic issues in computational geometry. In J.-D. Boissonnat and M. Teillaud, editors, *Effective Computational Geometry for Curves and Surfaces*. Springer-Verlag, Mathematics and Visualization, 2006.

[43] D. B. Mumford. Mathematical theories of shape: Do they model perception? In *Proc. Geometric Methods in Computer Vision Conference*, volume SPIE-1570, pages 2–10. Soc. Photo-optical & Ind. Engineers, 1991.

[44] R. Oostrum and R. C. Veltkamp. Parametric search made practical. *Comput. Geom. Theory Appl.*, 28(2-3):75–88, 2004.

[45] M. B. Pour-El and I. Richards. *Computability in Analysis and Physics*. Springer-Verlag, 1989.

[46] T. Rado. *Length and Area*, volume 30. American Mathematical Society Colloquium Publ., 1948.

[47] G. Rote. Computing the Fréchet distance between piecewise smooth curves. *Comput. Geom. Theory Appl.*, to appear.

[48] D. Sankoff and J. B. Kruskal, editors. *Time Warps, String Edits, and Macromolecules: the Theory and Practice of Sequence Comparison*. Addison-Wesley, 1983.

[49] V. Strassen. Gaussian elimination is not optimal. *Numerische Mathematik*, 13:354–356, 1969.

[50] A. Tversky. Features of similarity. *Psychological Review*, 84(4):327–352, 1977.

[51] R. Veltkamp and M. Hagedoorn. State-of-the-art in shape matching. In M. Lew, editor, *Principles of Visual Information Retrieval*. Springer-Verlag, 2001.

[52] S. Venkatasubramanian. *Geometric Shape Matching and Drug Design*. PhD thesis, Stanford University, 1999.

[53] K. Weihrauch. *Computable Analysis*. Texts in Theoretical Computer Science. An EATCS Series. Springer-Verlag, 2000.

[54] K. Weihrauch and X. Zheng. Computability on continuous, lower semi-continuous, and upper semi-continuous real functions. *Theoret. Comput. Sci.*, 234:109–133, 2000.

[55] C. Wenk. *Shape Matching in Higher Dimensions*. PhD thesis, Freie Universität Berlin, Germany, 2002.