
Bibliography

1. M. Alexa, J. Behr, D. Cohen-Or, S. Fleishman, D. Levin, and C. T. Silva. Point set surfaces. In *Proc. IEEE Visual.*, pp. 21–28, 2001.
2. E. Althaus. *Curve Reconstruction and Traveling Salesman Problem*. Ph.D. Thesis, Universität des Saarlandes, 2001.
3. E. Althaus and K. Mehlhorn. Traveling salesman-based curve reconstruction in polynomial time. *SIAM J. Comput.*, 31:27–66, 2002.
4. N. Amenta and M. Bern. Surface reconstruction by Voronoi filtering. *Discrete Comput. Geom.*, 22:481–504, 1999.
5. N. Amenta, M. Bern, and D. Eppstein. The crust and the β -skeleton: Combinatorial curve reconstruction. *Graph. Models Image Process.*, 60:125–135, 1998.
6. N. Amenta, S. Choi, T. K. Dey, and N. Leekha. A simple algorithm for homeomorphic surface reconstruction. *Int. J. Comput. Geom. Appl.*, 12:125–141, 2002.
7. N. Amenta, S. Choi, and R. K. Kolluri. The power crust, union of balls, and the medial axis transform. *Comput. Geom. Theory Appl.*, 19:127–153, 2001.
8. N. Amenta and Y. J. Kil. Defining point-set surfaces. In *Proc. ACM SIGGRAPH 2004*, pp. 264–270, 2004.
9. D. Attali. r -regular shape reconstruction from unorganized points. In *Proc. 13th Ann. Symp. Comput. Geom.*, pp. 248–253, 1997.
10. D. Attali, J.-D. Boissonnat, and A. Lieutier. Complexity of the Delaunay triangulation of points on surfaces: The smooth case. In *Proc. 19th Ann. Symp. Comput. Geom.*, pp. 201–210, 2003.
11. D. Avis and J. Horton. Remarks on the sphere of influence graph. In *Proc. Conf. Discrete Geom. Convexity*, J. E. Goodman et al. (eds.), *Ann. New York Acad. Sci.*, 440:323–327, 1985.
12. F. Bernardini and C. L. Bajaj. Sampling and reconstructing manifolds using α -shapes. In *Proc. 9th Can. Conf. Comput. Geom.*, pp. 193–198, 1997.
13. F. Bernardini, J. Mittleman, H. Rushmeier, C. T. Silva, and G. Taubin. The ball-pivoting algorithm for surface reconstruction. *IEEE Trans. Visual. Comput. Graph.*, 5:349–359, 1999.
14. H. Blum. A transformation for extracting new descriptor of shape. In *Models for the Perception of Speech and Visual Form*, W. Wathen-Dunn (ed.), MIT. Press, Cambridge, MA, pp. 362–380, 1967.
15. J.-D. Boissonnat. Geometric structures for three-dimensional shape representation. *ACM Trans. Graph.*, 3:266–286, 1984.

16. J.-D. Boissonnat and F. Cazals. Smooth surface reconstruction via natural neighbor interpolation of distance functions. In *Proc. 16th Ann. Symp. Comput. Geom.*, pp. 223–232, 2000.
17. J.-D. Boissonnat and B. Geiger. Three-dimensional reconstruction of complex shapes based on the Delaunay triangulation. In *Proc. Biomed. Image Process. Biomed. Visual.*, pp. 964–975, 1993.
18. J. C. Carr, R. K. Beatson, J. B. Cherrie, T. J. Mitchell, W. R. Fright, B. C. McCallum, and T. R. Evans. Reconstruction and representation of 3d objects with radial basis functions. In *Proc. ACM SIGGRAPH 2001*, pp. 67–76, 2001.
19. F. Chazal, D. Cohen-Steiner, and A. Lieutier. A sampling theory for compacts in Euclidean space. In *Proc. 22nd Ann. Symp. Comput. Geom.*, 2006.
20. F. Chazal and A. Lieutier. The λ -medial axis. *Graph. Models*, 67: 304–331, 2005.
21. F. Chazal and R. Soufflet. Stability and finiteness properties of medial axis and skeleton. *J. Control Dyn. Syst.*, 10:149–170, 2004.
22. S.-W. Cheng and T. K. Dey. Improved construction of Delaunay based contour surfaces. In *Proc. ACM Symp. Solid Model. Appl.*, pp. 322–323, 1999.
23. H.-L. Cheng, T. K. Dey, H. Edelsbrunner, and J. Sullivan. Dynamic skin triangulation. *Discrete Comput. Geom.*, 25:525–568, 2001.
24. L. P. Chew. Guaranteed-quality mesh generation for curved surfaces. In *Proc. 9th Ann. Symp. Comput. Geom.* pp. 274–280, 1993.
25. H. I. Choi, S. W. Choi, and H. P. Moon. Mathematical theory of medial axis transform. *Pac. J. Math.*, 181:57–88, 1997.
26. B. Curless and M. Levoy. A volumetric method for building complex models from range images. In *Proc. SIGGRAPH 96*, pp. 306–312, 1996.
27. L. H. de Figueiredo and J. de Miranda Gomes. Computational morphology of curves. *Vis. Comput.*, 11:105–112, 1995.
28. B. Delaunay. Sur la aphère vide. *Izv. Akad. Nauk SSSR, Otdelenie Matematicheskii i Estestvennyykh Nauk*, 7:793–800, 1934.
29. T. K. Dey, H. Edelsbrunner, and S. Guha. Computational topology. In *Advances in Discrete and Computational Geometry*, Contemporary Mathematics, B. Chazelle, E. Goodman, and R. Pollack (eds.), AMS, Providence, RI, 1998.
30. T. K. Dey and J. Giesen. Detecting undersampling in surface reconstruction. In *Proc. 17th Ann. Symp. Comput. Geom.*, pp. 257–263, 2001.
31. T. K. Dey, J. Giesen, and S. Goswami. Shape segmentation and matching with flow discretization. In *Proc. Workshop on Algorithms and Data Struct.*, LNCS 2748, pp. 25–36, 2003.
32. T. K. Dey, J. Giesen, E. A. Ramos, and B. Sadri. Critical points of the distance to an epsilon-sampling on a surface and flow-complex-based surface reconstruction. In *Proc. 21st Ann. Symp. Comput. Geom.*, pp. 218–227, 2005.
33. T. K. Dey and S. Goswami. Tight cocone: A water-tight surface reconstructor. *J. Comput. Inf. Sci. Eng.*, 3:302–307, 2003.
34. T. K. Dey and S. Goswami. Provable surface reconstruction from noisy samples. In *Proc. 20th Ann. Symp. Comput. Geom.*, pp. 330–339, 2004.
35. T. K. Dey, S. Goswami, and J. Sun. Extremal surface based projections converge and reconstruct with isotopy. Technical Report OSU-CISRC-4-05-TR25, Department of CSE, The Ohio State University, April 2005.
36. T. K. Dey and P. Kumar. A simple provable curve reconstruction algorithm. In *Proc. 10th Ann. ACM-SIAM Symp. Discrete Algorithms*, pp. 893–894, 1999.

37. T. K. Dey, G. Li, and J. Sun. Normal estimation for point clouds: a comparison study for a Voronoi based method. *Proc. Eurograph. Symp. Point-Based Graph.*, pp. 39–46, 2005.
38. T. K. Dey, K. Mehlhorn, and E. A. Ramos. Curve reconstruction: Connecting dots with good reason. *Comput. Geom. Theory Appl.*, 15:229–244, 2000.
39. T. K. Dey and J. Sun. Normal and feature approximations from noisy point clouds. Technical Report OSU-CISRC-7/50-TR50, Department of CSE, The Ohio State University, July 2005.
40. T. K. Dey and J. Sun. An adaptive MLS surface for reconstruction with guarantees. In *Proc. Eurograph. Symp. Geom. Process.*, pp. 43–52, 2005.
41. T. K. Dey and R. Wenger. Fast reconstruction of curves with sharp corners. *Int. J. Comput. Geom. Appl.*, 12:353–400, 2002.
42. T. K. Dey and W. Zhao. Approximating the medial axis from the Voronoi diagram with a convergence guarantee. *Algorithmica*, 38:179–200, 2004.
43. H. Edelsbrunner. *Geometry and Topology for Mesh Generation*, Cambridge University Press, Cambridge, England, 2001.
44. H. Edelsbrunner. Surface reconstruction by wrapping finite point sets in space. In *Ricky Pollack and Eli Goodman Festschrift*, B. Aronov, S. Basu, J. Pach and M. Sharir (eds.), Springer-Verlag, New York, pp. 379–404, 2003.
45. H. Edelsbrunner, M. A. Facello, and J. Liang. On the definition and the construction of pockets in macromolecules. *Discrete Appl. Math.* 88:83–102, 1998.
46. H. Edelsbrunner, D. G. Kirkpatrick, and R. Seidel. On the shape of a set of points in the plane. *IEEE Trans. Inform. Theory*, 29:551–559, 1983.
47. H. Edelsbrunner and E. P. Mücke. Three-dimensional alpha shapes. *ACM Trans. Graph.*, 13:43–72, 1994.
48. H. Edelsbrunner and N. Shah. Triangulating topological spaces. *Int. J. Comput. Geom. Appl.*, 7:365–378, 1997.
49. J. Erickson. Nice point sets can have nasty Delaunay triangulations. *Discrete Comput. Geom.* 30:109–132, 2003.
50. S. Fortune. Voronoi diagrams and Delaunay triangulations. In *Handbook of Discrete and Computational Geometry*, J. E. Goodman and J. O'Rourke (eds.), (2nd edition), Chapman & Hall/CRC, New York, pp. 513–528, 2004.
51. H. Fuchs, Z. M. Kedem, and S. P. Useton. Optimal surface reconstruction from planar contours. *Commun. ACM*, 20:693–702, 1977.
52. S. Funke and E. A. Ramos. Reconstructing curves with corners and endpoints. In *Proc. 12th Ann. ACM-SIAM Symp. Discrete Algorithms*, pp. 344–353, 2001.
53. S. Funke and E. A. Ramos. Smooth-surface reconstruction in near-linear time. In *13th ACM-SIAM Symp. Discrete Algorithms*, pp. 781–790, 2002.
54. J. Giesen. Curve reconstruction, the traveling salesman problem and Menger's theorem on length. *Discrete Comput. Geom.*, 24:577–603, 2000.
55. J. Giesen and M. John. Surface reconstruction based on a dynamical system. In *Proc. Eurographics 2002*, Vol. 21, No. 3, pp. 363–371, 2002.
56. J. Giesen and M. John. The flow complex: A data structure for geometric modeling. In *Proc. 14th Ann. ACM-SIAM Symp. Discrete Algorithms*, pp. 285–294, 2003.
57. C. Gitlin, J. O'Rourke, and V. Subramanian. On reconstruction of polyhedra from slices. *Int. J. Comput. Geom. Appl.*, 6:103–112, 1996.
58. C. Gold and J. Snoeyink. Crust and anti-crust: A one-step boundary and skeleton extraction algorithm. *Algorithmica*, 30:144–163, 2001.

59. K. Grove. Critical point theory for distance functions. *Proc. Symp. Pure Math.* 54(3): 357–385, 1993.
60. V. Guillemin and A. Pollack. *Differential Topology*, Prentice-Hall, New Jersey, 1974.
61. H. Hoppe, T. DeRose, T. Duchamp, J. McDonald, and W. Stützle. Surface reconstruction from unorganized points. In *Proc. SIGGRAPH 92*, pp. 71–78, 1992.
62. D. G. Kirkpatrick and J. D. Radke. A framework for computational morphology. In *Computational Geometry*, G. Toussaint (ed.), Elsevier, New York, pp. 217–248, 1985.
63. R. Kolluri. Provably good moving least squares. In *Proc. Ann. 16th ACM-SIAM Symp. Discrete Algorithms*, pp. 1008–1017, 2005.
64. R. Kolluri, J. R. Shewchuk, and J. F. O'Brien. Spectral surface reconstruction from noisy point clouds. In *Symp. Geom. Process.*, pp. 11–21, 2004.
65. D. Levin. Approximation power of moving least squares. *Math. Comp.* 67:1517–1531, 1998.
66. G. Matheron. Examples of topological properties of skeletons. In *Image Analysis and Mathematical Morphology, Vol. 2: Theoretical Advances*, J. Serra (ed.), Academic Press, London, pp. 217–238, 1988.
67. B. Mederos, N. Amenta, L. Velho, and H. de Figueiredo. Surface reconstruction from noisy point clouds. In *Proc. Eurograph. Symp. Geom. Process.*, pp. 53–62, 2005.
68. D. Meyers, S. Skinner, and K. Sloan. Surfaces from contours. *ACM Trans. Graph.*, 11:228–258, 1992.
69. N. Mitra, A. Nguyen, and L. Guibas. Estimating surface normals in noisy point cloud data. *Int. J. Comput. Geom. Appl.*, 14:261–276, 2004.
70. J. Milnor. *Morse Theory*, Princeton University Press, Princeton, NJ, 1963.
71. J. R. Munkres. *Topology, a First Course*, Prentice-Hall, Englewood Cliffs, NJ, 1975.
72. J. R. Munkres. *Elements of Algebraic Topology*, Addison-Wesley, New York, 1984.
73. Y. Ohtake, A. Belyaev, M. Alexa, G. Turk, and H.-P. Seidel. Multi-level partition of unity implicits. In *Proc. ACM SIGGRAPH 2003*, pp. 463–470, 2003.
74. A. Okabe, B. Boots, and K. Sugihara. *Spatial Tessellations: Concepts and Applications of Voronoi Diagrams*. John Wiley & Sons, Chichester, 1992.
75. M. Pauly, R. Keiser, L. Kobbelt, and M. Gross. Shape modeling with point-sampled geometry. In *Proc. ACM SIGGRAPH 2003*, pp. 641–650, 2003.
76. J. Ruppert. A Delaunay refinement algorithm for quality 2-dimensional mesh generation. *J. Algorithms*, 18:548–585, 1995.
77. C. Shen, J. F. O'Brien, and J. R. Shewchuk. Interpolating and approximating implicit surfaces from polygon soup. In *Proc. ACM SIGGRAPH 2004*, pp. 896–904, 2004.
78. D. Siersma. Voronoi diagrams and Morse theory of the distance function. In *Geometry in Present Day Science*, O.E. Barndorff-Nielsen and E. B. V. Jensen (eds.), World Scientific, Singapore, pp. 187–208, 1999.
79. J. Stillwell. *Classical Topology Combinatorial Group Theory*, Springer-Verlag, New York, 1980.
80. G. Voronoi. Nouvelles applications des paramètres continus à la théorie des formes quadratiques. *J. Reine Angew. Math.*, 133: 97–178, 1907, and 134:198–287, 1908.

81. J. R. Weeks. *The Shape Space*, Marcel Dekker, New York, 1985.
82. F.-E. Wolter. Cut locus and medial axis in global shape interrogation and representation. MIT Design Laboratory Memorandum 92-2 and MIT Sea Grant Report, 1992.
83. M. Zwicker, M. Pauly, O. Knoll, and M. Gross. Pointshop 3d: An interactive system for point-based surface editing. In *Proc. ACM SIGGRAPH 2002*, pp. 322–329, 2002.

