References

Agin, G. J. and Binford, T. O. (1973). Computer description of curved objects. In *Proceedings of the 3rd International Joint Conference on Artificial Intelligence (IJCAI)*, pages 629–640. IJCAI.

Bajaj, C. L. and Ihm, I. (1992). Smoothing polyhedra using implicit algebraic splines. *Computer Graphics (Proceedings SIGGRAPH'92)*, 26(2):79–88.

Baker, H. H. (1988). Building, visualizing, and computing on surfaces of evolution. *IEEE Computer Graphics and Applications*, 8(4):31–41.

Baraff, D. (1991). Rigid body concepts. In *SIGGRAPH '91 Course notes #23: An Introduction to Physically Based Modeling*. SIGGRAPH.

Barr, A. H. (1981). Superquadrics and angle preserving transformations. *IEEE Computer Graphics and Applications*, 1(1):11–23.

Barr, A. H. (1984). Global and local deformations of solid primitives. *Computer Graphics (SIGGRAPH'84)*, 18(3):21–30.

Bartels, R. H. and Beatty, J. C. (1989). A technique for the direct manipulation of spline curves. In *Graphics Interface '89*, pages 33–39.

Bartels, R. H., Beatty, J. C., and Barsky, B. A. (1987). *An Introduction to Splines for use in Computer Graphics and Geeometric Modeling.* Morgan Kaufmann Publishers, Los Altos, California.

Barton, A. (1974). *The Dynamic Liquid State.* Longman Group Limited, New York.

Blinn, J. F. (1982). A generalization of algebraic surface drawing. *ACM Transactions on Graphics*, 1(3):235–256.

Bloomenthal, J. (1988). Polygonization of implicit surfaces. *Computer Aided Geometric Design*, 5(4):341–355.

Bloomenthal, J. (1989). Techniques for implicit modeling. Technical Report P89-00106, Xerox PARC.

Boissonnat, J. D. (1984). Representing 2D and 3D shapes with the Delaunay triangulation. In *Seventh International Conference on Pattern Recognition (ICPR'84)*, pages 745–748, Montreal, Canada.

Boult, T. E. and Kender, J. R. (1986). Visual surface reconstruction using sparse depth data. In *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR'86)*, pages 68–76, Miami Beach, Florida.

Breen, D., House, D., and Getto, P. (1991). A particle-based computational model of cloth draping. In *Scientific Visualization of Physical Phenomena (Proceedings of Computer Graphics International '91)*, pages 113–134. Springer-Verlag.

Breen, D. E., House, D. H., and Wozny, M. J. (1994). Predicting the drape of woven cloth using interacting particles. *Computer Graphics (Proceedings SIGGRAPH'94)*, 28(3):365–372.

Carlbom, I., Hsu, W. M., Klinker, G., Szeliski, R., Waters, K., Doyle, M., Gettys, J., Harris, K. M., Levergood, T. M., Palmer, R., Palmer, L., Picart, M., Terzopoulos, D., Tonnesen, D., Vannier, M., and Wallace, G. (1992). Modeling and analysis of empirical data in collaborative environments. *Communications of the ACM*, 35(6):75–84.

Case, J. (1938). *The Strength of Materials*. Edward Arnold and Co., London, third edition.

Catmull, E. and Clark, J. (1978). Recursively generated B-spline surfaces on arbitrary topological meshes. *Computer-aided Design*, 10(6):350–355.

Celniker, G. and Gossard, D. (1991). Deformable curve and surface finite-elements for free-form shape design. *Computer Graphics (Proceedings SIGGRAPH'91)*, 25(4):257–266.

Chen, J. X. and Lobo, N. V. (1995). Toward interactive-rate simulation of fluids with moving obstacles using navier-stokes equations. *Graphical Models and Image Processing*, 57(2):107–116.

Chew, L. P. (1993). Guaranteed-quality mesh generation for curved surfaces. In *Proceedings of the ACM Symposium on Computational Geometry*, pages 274–280.

Christy, R. W. and Pytte, A. (1965). *The Structure of Matter: An Introduction to Modern Physics*. W. A. Benjamin, New York.

Coquillart, S. (1990). Extended free-form deformation: A sculpturing tool for 3D geometric modeling. *Computer Graphics (SIGGRAPH'90)*, 24(4):187–196.

Crossno, P. and Angel, E. (1997). Isosurface extraction using particle systems. In *Proceedings of the conference on Visualization '97*.

de Berg, M., van Kreveld, M., Overmars, M., and Schwarzkopf, O. (1997). *Computational Geometry Algorithms and Applications*. Springer-Verlag, Berlin.

Desbrun, M. and Gascuel, M. (1995). Animating soft substances with implicit surfaces. *Computer Graphics (Proceedings SIGGRAPH'95)*, pages 287–290.

Desbrun, M. and Gascuel, M. (1996). Smoothed particles: A new paradigm for animating highly deformable bodies. In *Eurographics Workshop on Animation and Simulation '96*.

Doo, D. and Sabin, M. (1978). Behaviour of recursive division surfaces near extraordinary points. *Computer-aided Design*, 10(6):356–360.

Dwyer, R. (1991). Higher-dimensional voronoi diagrams in linear expected time. *Discrete Computational Geometry*, pages 343–367.

Edelsbrunner, H. and Mücke, E. P. (1994). Three-dimensional alpha shapes. *ACM Transactions on Graphics*, 13(1):43–72.

Farin, G. E. (1992). *Curves and Surfaces for Computer Aided Geometric Design*. Academic Press, Boston, Massachusetts, 3rd edition.

Fleischer, K., Laidlaw, D., Currin, D., and Barr, A. (1995). Cellular texture generation. *Computer Graphics (Proceedings SIGGRAPH'95)*, pages 239–248.

Foley, J. D., Van Dam, A., Feiner, S. K., and Hughes, J. F. (1990). *Computer Graphics: Principles and Practice*. Addison-Wesley, 2nd edition.

Forsey, D. R. and Bartels, R. H. (1988). Hierarchical b-spline refinement. *Computer Graphics (Proceedings SIGGRAPH'88)*, 22(4):205–212.

Foster, N. and Metaxas, D. (1996). Realistic animation of liquids. In *Graphics Interface*, pages 204–212.

Foster, N. and Metaxas, D. (1997a). Controlling fluid animation. In *Graphics Interface*, pages 178–188.

Foster, N. and Metaxas, D. (1997b). Modeling the motion of a hot, turbulent gas. *Computer Graphics (Proceedings SIGGRAPH'97)*.

Fournier, A. and Reeves, W. T. (1986). A simple model of ocean waves. *Computer Graphics (SIGGRAPH'86)*, 20(4):75–84.

Franke, R. (1982). Scattered data interpolation: Tests of some methods. *Mathematics of Computation*, 38(157):181–200.

Fua, P. and Sander, P. (1992). Reconstructing surfaces from unstructured 3d points. In *Second European Conference on Computer Vision (ECCV'92)*, pages 50–55, Sta. Margherita, Italy. Springer-Verlag.

Gasson, P. C. (1983). *Geometry of Spatial Forms*. Ellis Horwood Limited.

Glassner, A., editor (1993). *Graphic Gems I*. Academic Press.

Goldstein, H. (1950). *Classical Mechanics*. Addison-Wesley Publishing Co.

Goodman, J. and O'Rourke, J., editors (1997). *Handbook of Discrete and Computational Geometry*. CRC Press, New York.

Goss, M. E. (1990). A real time particle system for display of ship wakes. *IEEE Computer Graphics and Applications*, 10(3):30–35.

Gould, H. and Tobochnik, J. (1988). *An Introduction to Computer Simulation Methods*. Addison-Wesley, Reading Massachusetts.

Gray, A. (1993). *Modern differential geometry of curves and surfaces.* CRC Press, Boca Raton, Florida.

Greengard, L. (1988). *The Rapid Evaluation of Potential Fields in Particle Systems.* The MIT Press, Boston, Massachusetts.

Greenspan, D. (1973). *Discrete Models.* Addison-Wesley, Reading, Massachusetts.

Guo, B. and Menon, J. (1996). Local shape control of free-form solids in exact csg representation. *Computer-Aided Design*, 28(6-7):483–493.

Guo, B., Menon, J., and Willette, B. (1997). Surface reconstruction using alpha shapes. *Computer Graphics Forum*, 16(4):177–190.

Haber, R. B. and McNabb, D. A. (1990). Visualization idioms: A conceptual model for scientific visualization systems. In *Visualization in Scientific Computing*, pages 74–93. IEEE Computer Society Press.

Hall, M. and Warren, J. (1990). Adaptive polygonalization of implicitly defined surfaces. *IEEE Computer Graphics and Applications*, 10(6):33–42.

Haumann, D., Wejchert, J., Arya, K., Bacon, B., Khorasani, A., Norton, A., and Sweeney, P. (1991). An application of motion design and control for physically-based animation. In *Proceedings of Graphics Interface '91*, pages 279–286.

Hay, G. E. (1953). *Vector and Tensor Analysis.* Dover Publications, Inc.

Heggie, C. (1987). The n-body problem in stellar dynamics. In Roy, A. E., editor, *NATA Advanced Studies Institute: a long-term Dynamical Behaviour of Natural and Artificial N-Body Systems*, pages 329–347. Kluwer Academic Publishers, Boston.

Heyes, D. M. (1998). *The liquid state: applications of molecular simulations.* John Wiley and Sons Ltd.

Hibbard, W. and Santek, D. (1989). Interactivity is the key. In *Chapel Hill Workshop on Volume Visualization, Conference Proceedings*, pages 39–43, Chapel Hill, North Carolina.

Higgins, W. E., Chung, N., and Ritman, E. L. (1990). Extraction of left-ventricular chamber from 3-D CT images of the heart. *IEEE Transactions on Medical Imaging*, 9(4).

Hockney, R. W. and Eastwood, J. W. (1981). *Computer Simulation using Particles.* McGraw-Hill Inc., New York.

Hockney, R. W. and Eastwood, J. W. (1988). *Computer Simulation using Particles.* McGraw-Hill Inc., New York.

Hoffman, C. M. (1989). *Geometric and Solid Modeling.* Morgan Kaufmann Publishers.

Hoffmann, B. (1966). *About Vectors.* Dover Publications, New York.

Hoppe, H., DeRose, T., Duchamp, T., McDonald, J., and Stuetzle, W. (1992). Surface reconstruction from unorganized points. *Computer Graphics (Proceedings SIGGRAPH'92)*, 26(2):71–78.

Houwink, R. and de Decker, H. K., editors (1971). *Elasticity, Plasticity, & Structure of Matter.* Cambridge University Press, 3rd edition.

Hsu, W. M., Hughes, J. F., and Kaufman, H. (1992). Direct manipulation of free-form deformations. *Computer Graphics (Proceedings SIGGRAPH '92)*, 26(2):177–184.

Jaeger, J. C. (1969). *Elasticity, Fracture and Flow.* Butler and Tanner Ltd, London, 3rd edition.

Kass, M. and Miller, G. (1990). Rapid, stable fluid dynamics for computer graphics. *Computer Graphics (SIGGRAPH'90)*, 24(4):49–55.

Kass, M., Witkin, A., and Terzopoulos, D. (1987). Snakes: Active contour models. *International Journal of Computer Vision*, 1(4):321–331.

Koenderink, J. J. (1990). *Solid Shape.* MIT Press, Cambridge, MA.

Kreyszig, E. (1959). *Differential Geometry.* University of Toronto Press.

Lawson, C. L. (1977). Software for C^1 surface interpolation. In *Mathematical Software III (Proceedings of the Symposium on Mathematical Software '77, Madison, Wisconsin)*, pages 161–194.

Lee, Y., Terzopoulos, D., and Waters, K. (1995). Realistic modeling for facial animation. *Computer Graphics (Proceedings SIGGRAPH'95)*, pages 55–62.

Lombardo, J. and Puech, C. (1995). Oriented particles: A tool for shape memory objects modelling. In *Graphics Interface*, pages 255–262.

Loop, C. (1994). A G^1 triangular spline surface of arbitrary topological type. *Computer Aided Geometric Design*, 11(3):303–330.

Loop, C. and DeRose, T. (1990). Generalized B-spline surfaces of arbitrary topology. *Computer Graphics (SIGGRAPH'90)*, 24(4):347–356.

Loop, C. T. (1987). Smooth subdivision surfaces based on triangles. Master's thesis, University of Utah.

Lord, E. A. and Wilson, C. B. (1984). *The Mathematicl Description of Shape and Form.* Ellis Horwood Ltd.

Lorensen, W. and Cline, H. (1987). Marching cubes: A high resolution 3-D surface construction algorithm. *Computer Graphics (SIGGRAPH'87)*, 21(4):163–169.

Madsen, K. H. (1994). A guide to metaphorical design. *Communications of the ACM*, 37(12):57–62.

Marion, J. B. (1970). *Classical Dynamics of Particles and Systems.* Academic Press, 2nd edition.

McInerney, T. and Terzopoulos, D. (1993). A finite element model for 3D shape reconstruction and nonrigid motion tracking. In *Fourth International Conference on Computer Vision (ICCV'93)*, pages 518–523. IEEE Computer Society Press.

McInerney, T. and Terzopoulos, D. (1996). Deformable models in medical image analysis: A survey. *Medical Image Analysis*, 1(2):91–108.

McInerney, T. and Terzopoulos, D. (1997). Medical image segmentation using topologically adaptable surfaces. In *Proceedings of CVRMed*, page unknown.

Meier, B. (1996). Painterly rendering for animation. *Computer Graphics (SIGGRAPH'96)*, pages 477–484.

Miller, G. and Pearce, A. (1989). Globular dynamics: A connected particle system for animating viscous fluids. In *SIGGRAPH '89, Course 30 notes: Topics in Physically-based Modeling*, pages R1 – R23. SIGGRAPH.

Miller, G. S. P. (1988). The motion dynamics of snakes and worms. *Computer Graphics (Proceedings SIGGRAPH'88)*, 22(4):169–178.

Miller, J., Breen, D., Lorensen, W., O'Bara, R., and Wozny, M. (1991). Geometrically deformed models: A method for extracting closed geometric models from volume data. *Computer Graphics (SIGGRAPH'91)*, 25(4):217–226.

Miner, D. F. and Seastone, J. B., editors (1955). *Handbook of Engineering Materials.* John Wiley and Sons.

Monaghan, J. J. (1982). Why particle methods work. *SIAM J. Sci. Stat. Computing*, 3(4):422–433.

Monaghan, J. J. (1985). Particle methods for hydrodynamics. *Computer Physics Reports*, 3(2):71–124.

Monaghan, J. J. (1988). An introduction to SPH. *Computer Physics Communications*, 48(1):543–574.

Monaghan, J. J. (1992). Smoothed particle hydrodynamics. *Annu. Rev. Astron. Astrophys.*, 30:543–574.

Monaghan, J. J., Thompson, M. C., and Hourigan, K. (1994). Simulation of free surface flows with SPH. ASME Symposium on Computational Methods in Fluid Dynamics. http://www-personal.monash.edu.au/ mecheng/mct/docs/sph/sph.html (Mar. 1998).

Monga, O., Deriche, R., Maladin, G., and Cocquerez, J. P. (1990). Recursive filtering and edge closing: two primary tools for 3D edge detection. In *First European Conference on Computer Vision (ECCV'90)*, pages 56–65, Antibes, France. Springer-Verlag.

Moreton, H. P. and Séquin, C. H. (1992). Functional optimization for fair surface design. *Computer Graphics (SIGGRAPH'92)*, 26(2):167–176.

Mould, D. and Yang, Y.-H. (1997). Modeling water for computer graphics. *Computer and Graphics*, 21(6):801–814.

Nevatia, R. and Binford, T. O. (1977). Description and recognition of curved objects. *Artificial Intelligence*, 8:77–98.

Ney, D., Fishman, E. K., and Magid, D. (1990). Three dimensional imaging of computed tomography: Techniques and applications. In *First Conference on Visualization in Biomedical Computing (VBC'90)*, pages 498–506, Los Alamitos, California. IEEE Computer Society Press.

O'Brien, J. F. and Hodgins, J. K. (1994). Dynamic simulation of splashing fluids. Technical Report GIT-GVU-94-32, Georgia Institute of Technology.

O'Brien, J. F. and Hodgins, J. K. (1995). Dynamic simulation of splashing fluids. In *Proceedings of Computer Animation '95*, pages 198–205. Geneva Switzerland, April 19-21.

Overmars, M. H. (1983). *The Design of Dynamic Data Structures.* Lecture Notes in Computer Science #156. Springer-Verlag.

Peachy, D. R. (1986). Modeling waves and surf. *Computer Graphics (SIGGRAPH'86)*, 20(4):65–74.

Pentland, A. P. (1986). Perceptual organization and the representation of natural form. *Aritificial Intelligence*, 28(3):293–331.

Peters, J. and Reif, U. (1997). The simplest subdivision scheme for smoothing polyhedra. *ACM Transactions on Graphics*, 16(4):420–431.

Preparata, F. P. and Shamos, M. (1985). *Computational Geometry - An Introduction.* Springer-Verlag, New York, NY.

Press, W. H., Flannery, B. P., Teukolsky, S. A., and Vetterling, W. T. (1988). *Numerical Recipes in C: The Art of Scientific Computing.* Cambridge University Press, Cambridge, England.

Press, W. H., Flannery, B. P., Teukolsky, S. A., and Vetterling, W. T. (1992). *Numerical Recipes in C: The Art of Scientific Computing.* Cambridge University Press, Cambridge, England, second edition.

Qin, H. and Terzopoulos, D. (1996). D-nurbs: A physics-based framework for geometric design. *IEEE Transactions on Visualization and Computer Graphics*, 2(1):85–96.

Reeves, W. T. (1983a). Particle systems — a technique for modeling a class of fuzzy objects. *Computer Graphics*, 17(3):359–376.

Reeves, W. T. (1983b). Particle systems—A technique for modeling a class of fuzzy objects. *ACM Transactions on Graphics*, 2(2):91–108.

Reeves, W. T. and Blau, R. (1985). Approximate and probabilistic algorithms for shading and rendering structured particle systems. *Computer Graphics*, 19(3):313–322.

Reynolds, C. W. (1987). Flocks, herds, and schools: A distributed behavioral model. *Computer Graphics (SIGGRAPH'87)*, 21(4):25–34.

Reynolds, H. (1997). An alternative inter-particle force model for coupled system flexible body dynamics. In *Proceedings of Eurographics Workshop in Budapest, Hungary '97*, pages 99–110.

Rippa, S. (1990). Minimal roughness property of the delauney triangulation. *Computer Aided Geometric Design*, 7(6):489–497.

Roy, T. M. (1995). Physically based fluid model using smoothed particle hydrodynamics. Master's thesis, University of Illinois at Chicago.

Sachs, E., Roberts, A., and Stoops, D. (1991). 3-Draw: A tool for designing 3D shapes. *IEEE Computer Graphics and Applications*, 11(6):18–26.

Samet, H. (1989). *The Design and Analysis of Spatial Data Structures.* Addison-Wesley, Reading, Massachusetts.

Sander, P. and Zucker, W. (1990). Inferring surface trace and differential structure from 3-D images. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 12(9):833–854.

Sederberg, T. W. and Parry, S. R. (1986). Free-form deformation of solid geometric models. *Computer Graphics (SIGGRAPH'86)*, 20(4):151–160.

Shoemake, K. (1985). Animating rotation with quaternion curves. *Computer Graphics (SIGGRAPH'85)*, 19(3):245–254.

Shoemake, K. (1989). Quaternion calculus for animation. In *SIGGRAPH '89, Course notes #23: Math for SIGGRAPH*, pages 187 – 205. SIGGRAPH.

Shoemake, K. (1991). Quaternions and 4x4 matrices. In *Graphic Gems II*, chapter VII.6, pages 351–354. Academic Press.

Sims, K. (1988). Particle dreams. In *SIGGRAPH Video Review*, New York. ACM SIGGRAPH.

Sims, K. (1989). Particle animation and rendering using data parallel computation. In *SIGGRAPH '89, Course 30 notes: Topics in Physically-based Modeling*, pages T1– R15, New York. SIGGRAPH.

Sims, K. (1990). Particle animation and rendering using data parallel computation. *Computer Graphics (SIGGRAPH'90)*, 24(4):405–413.

Sims, K. (1992). Choreographed image flow. *The Journal Of Visualization And Computer Animation*, 3:31–43.

Solina, F. and Bajcsy, R. (1990). Recovery of parametric models from range images: The case for superquadrics with global deformations. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 12(2):131–147.

Stam, J. (1995). *Multi-Scale Stochastic Modelling of Complex Natural Phenomena.* PhD thesis, Dept. of Computer Science, University of Toronto.

Stam, J. and Fiume, E. (1993). Turbulent wind fields for gaseous phenomena. *Computer Graphics (Proceedings of SIGGRAPH'93)*, pages 369–376.

Stam, J. and Fiume, E. (1995). Depiction of fire and other gaseous phenomena using diffusion processes. *Computer Graphics (Proceedings of SIGGRAPH'95)*, pages 129–136.

Stytz, M. R., Frieder, G., and Frieder, O. (1991). Three-dimensional medical imaging: Algorithms and computer systems. *ACM Computing Surveys*, 23(4):421–499.

Szeliski, R. (1990). Fast surface interpolation using hierarchical basis functions. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 12(6):513–528.

Szeliski, R. (1991). Shape from rotation. In *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR'91)*, pages 625–630, Maui, Hawaii. IEEE Computer Society Press.

Szeliski, R. (1993). Rapid octree construction from image sequences. *CVGIP: Image Understanding*, 58(1):23–32.

Szeliski, R. (1998). Private communication. May 1998.

Szeliski, R. and Tonnesen, D. (1992). Surface modeling with oriented particles. *Computer Graphics (SIGGRAPH'92)*, 26(2):185–194.

Szeliski, R., Tonnesen, D., and Terzopoulos, D. (1993a). Curvature and continuity control in particle-based surface models. In *SPIE Vol. 2031 Geometric Methods in Computer Vision II*, pages 172–181, San Diego. Society of Photo-Optical Instrumentation Engineers.

Szeliski, R., Tonnesen, D., and Terzopoulos, D. (1993b). Modeling surfaces of arbitrary topology with dynamic particles. In *IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR'93)*, pages 82–87, New York, New York.

Temperley, H. N. V. (1978). *Liquids and their properties.* Ellis Horwood Limited, Chichester, England.

Terzopoulos, D. (1984). *Multiresolution Computation of Visible-Surface Representations.* PhD thesis, Dept. of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA, USA.

Terzopoulos, D. (1986). Image analysis using multigrid relaxation methods. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 8(2):129–139.

Terzopoulos, D. (1988). The computation of visible-surface representations. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 10(4):417–438.

Terzopoulos, D. and Fleischer, K. (1988a). Deformable models. *The Visual Computer*, 4(6):306–331.

Terzopoulos, D. and Fleischer, K. (1988b). Modeling inelastic deformations: Visoelasticity, plasticity, fracture. *Computer Graphics (SIGGRAPH'88)*, 22(4):269–278.

Terzopoulos, D. and Metaxas, D. (1991). Dynamic 3D models with local and global deformations: Deformable superquadrics. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 13(7):703–714.

Terzopoulos, D., Platt, J., Barr, A., and Fleischer, K. (1987). Elastically deformable models. *Computer Graphics (SIGGRAPH'87)*, 21(4):205–214.

Terzopoulos, D., Platt, J., and Fleischer, K. (1989). Heating and melting deformable models (from goop to glop). In *Proceedings Graphics Interface*, pages 219–226. Graphics Interface.

Terzopoulos, D. and Qin, H. (1994). Dynamic nurbs with geometric constraints for interactive sculpting. *ACM Transactions on Graphics*, 13(2):103–136. Special Issue on Interactive Sculpting.

Terzopoulos, D., Witkin, A., and Kass, M. (1987). Symmetry-seeking models and 3D object reconstruction. *International Journal of Computer Vision*, 1(3):211–221.

Terzopoulos, D., Witkin, A., and Kass, M. (1988). Constraints on deformable models: Recovering 3D shape and nonrigid motion. *Artificial Intelligence*, 36(1):91–123.

Tonnesen, D. (1989). Ray-tracing implicit surfaces resulting from the summation of bounded polynomial functions. Technical Report TR-89003, Rensselaer Design Research Center, Rensselaer Polytechnic Institute, Troy, New York.

Tonnesen, D. (1991). Modeling liquids and solids using thermal particles. In *Proceedings Graphics Interface '91*, pages 255–262.

Trevena, D. H. (1975). *The liquid phase.* Wykeham Publications, London, England.

Tu, X. and Terzopoulos, D. (1994). Artificial fishes: Physics, locomotion, perception, behavior. *Computer Graphics (Proceedings SIGGRAPH'94)*, 28(3):43–50.

Turk, G. (1992). Re-tiling polygonal surfaces. *Computer Graphics (Proceedings SIGGRAPH'92)*, 26(2):55–64.

Vasilescu, M. and Terzopoulos, D. (1992). Adaptive meshes and shells: Irregular triangulation, discontinuities, and hierarchical subdivision. In *Computer Vision and Pattern Recognition Conference (CVPR-92)*, pages 829–832, Champaign, IL. IEEE Computer Society Press.

Velho, L. (1990). Adaptive polygonization of implicit surfaces using simplical decomposition and boundary constraints. In *Proceedings of Eurographics '90*, pages 125–136.

Vitasek, E. (1969). *Survey of Applicable Mathematics*, chapter 27: Solution of Partial Differential Equations by the Finite-Difference Method. MIT Press.

Waters, K. and Terzopoulos, D. (1990). A physical model of facial tissue and muscle articulation. In *First Conference on Visualization in Biomedical Computing (VBC'90)*, pages 77–82, Los Alamitos, California. IEEE Computer Society Press.

Welch, W. and Witkin, A. (1992). Variational surface modeling. *Computer Graphics (Proceedings SIGGRAPH'92)*, 26(2):157–166.

Welch, W. and Witkin, A. (1994). Free-form shape design using triangulated surfaces. *Computer Graphics (Proceedings SIGGRAPH'94)*, 28(3):247–256.

Witkin, A. P. and Heckbert, P. S. (1994). Using particles to sample and control implicit surfaces. *Computer Graphics (Proceedings SIGGRAPH'94)*, 28(3):269–277.

Wolfe Jr., R. H. and Liu, C. N. (1988). Interactive visualization of 3D seismic data: A volumetric method. *IEEE Computer Graphics and Applications*, 8(4):24–30.

Wolfram, S. (1988). *Mathematica: A System for Doing Mathematics by Computer.* Addison-Wesley, Redwood City, California.

Wyvill, B., McPheeters, C., and Wyvill, G. (1986a). Animating soft objects. *The Visual Computer*, 2:235–242.

Wyvill, B., McPheeters, C., and Wyvill, G. (1986b). Data structures for soft objects. *The Visual Computer*, 2:227–234.

Wyvill, G. and Trotman, A. (1989). Ray-tracing soft objects. *Proceedings of Graphics Interface 1989*, pages 469–476.

Zhai, S., Buxton, W., and Milgram, P. (1994). The “silk cursor”: Investigating transparency for 3D target acquisition. In *Proceedings of ACM CHI'94 on Human Factors in Computing Systems*, pages 459–464.

Zhao, F. (1987). An O(N) algorithm for three-dimensional N-body simulations. Master's thesis, MIT Department of Electrical Engineering and Computer Science, Cambridge, Massachusetts. Also MIT Artificial Intelligence Laboratory technical report number AI-TR-995.

Zorin, D., Schröder, P., and Sweldens, W. (1996). Interpolating subdivision for meshes with arbitrary topology. *Computer Graphics (Proceedings SIGGRAPH'96)*, pages 189–192.

Zwillinger, D., editor (1995). *CRC Standard Mathematical Tables and Formulas.* CRC Press, Inc., Baco Raton, Florida, 29th edition.