Bibliography

[1] V. Adzhiev, A. Pasko, V. Savchenko and A. Sourin, "Shape Modeling with Real Functions", *Open Systems*, Vol.5, No. 19, 1995, pp.14–18 (in Russian). Electronic version available at http://www.osp.ru/os/1996/05/source/14.html.

[2] M. Aono and T. Kunii, "Botanical Tree Image Generation", *IEEE Computer Graphics and Applications*, Vol. 4, No. 5, May 1984, pp. 10–29, 32–34.

[3] T. Beier, "Practical Uses for Implicit Surfaces in Animation", *SIGGRAPH Course 23*, August 1990, pp. 20.1–20.11.

[4] H. Bidasaria, "Defining and Rendering of Textured Objects through the Use of Exponential Functions", *Graphical models and image processing*, Vol. 54, No. 2, March, 1992, pp.97–102.

[5] C. Blanc and C. Schlick, "Extended Field Functions for Soft Objects", *Implicit Surfaces'95*, Proceedings of the first international workshop on Implicit Surfaces, Grenoble, France, April 1995, pp. 21–32.

[6] C. Blanc and C. Schlick, "Ratioquadrics: an Alternative Model for Superquadrics", *The Visual Computer*, Vol. 12, No. 8, pp.420–428, 10/1996.

[7] J. Blinn, "A Generalization of Algebraic Surface Drawing", *ACM TOG*, Vol. 1, No. 3, July 1982, pp. 235–256.

[8] J. Bloomenthal, "Modeling the Mighty Maple", *Computer Graphics (SIGGRAPH '85 Proceedings)*, Vol. 19, No. 3, San Francisco, California, July 1985, pp.305–311.

[9] J. Bloomenthal, "Polygonization of Implicit Surfaces", *Computer Aided Geometric Design*, 5(1988), pp. 341–355.

[10] J. Bloomenthal and B. Wyvill, "Interactive Techniques for Implicit Modeling", *SIGGRAPH Course 23*, August 1990, pp. 17.1–17.8

[11] J. Bloomenthal, "Techniques for Implicit Modeling", *SIGGRAPH Course 23*, August 1990, pp. 13.1–13.8.

[12] J. Bloomenthal and K. Shoemake, "Convolution Surfaces", *Computer Graphics (SIGGRAPH '91 Proceedings)*, Vol. 25, No. 4, Las Vegas, Nevada, July 1991, pp. 251–257.

[13] J. Bloomenthal, *Skeletal Design of Natural Forms*, doctoral dissertation, University of Calgary, Dept. Computer Science, 1995.

[14] J. Bloomenthal, "Bulge elimination in implicit surface blends", *Implicit Surfaces'95*, Proceedings of the first international workshop on Implicit Surfaces, Grenoble, France, April 1995, pp. 7–20.

[15] J. Bloomenthal, editor, *Introduction to Implicit Surfaces*, Morgan Kaufmann Inc, 1997.

[16] J. Bloomenthal, "Bulge Elimination in Convolution Surfaces", *Computer Graphics Forum*, Vol. 16, No. 1, 1997, pp.31–41.

[17] J. Buchanan and P. Turner, *Numerical Methods and Analysis*, McGraw-Hill, Inc, 1992.

[18] M.-P. Cani-Gascuel, "Layered Deformable Models with Implicit Surfaces", *Proceedings of Graphics Interface '98*, Vacouver, Canada, June 1998, pp. 201–208.

[19] S. Colburn, "Solid Modeling with Global Blending for Machining Dies and Patterns", *SAE Technical Paper Series* 900878, Society of Automotive Engineers, Inc., 1990.

[20] B. Crespin, C. Blanc and C. Schlick, "Implicit Sweep Objects", *Computer Graphics Forum*, Vol.15, No.3, pp. C165–74, 1996.

[21] M. Desbrun and M.-P. Gascuel, "Animating Soft Substances with Implicit Surfaces", *Computer Graphics (SIGGRAPH '95 Proceedings)*, Los Angeles, California, August 1995, pp. 287–290.

[22] A. Dorin, "A Model of Protozoan Movement for Artificial Life", *Insight Through Computer Graphics: Proceedings of the Computer Graphics International 1994 (CGI94)*, Gigante and Kunii (eds), World Scientific, 1996, pp. 28–38.

[23] P. Embree and B. Kimble, *C Language Algorithms for Digiatal Signal Processin*, Prentice Hall, 1991.

[24] E. Ferley, M.-P. Cani-Gascuel, and D. Attali, "Skeletal Reconstruction of Branching Shapes", *Implicit Surfaces'96: 2nd International Workshop on Implicit Surfaces*, Eindhoven, The Netherlands, October 1996.

[25] Foley J.D., van Dam A., Feiner S.K. and Hughes J.F., *Computer Graphics, Principles and Practice*, second edition. Reading, Massachusetts: Addison-Wesley, 1990.

[26] A. Fournier, "The Modelling of Natural Phenomena", *SIGGRAPH Course 22*, August 1994, pp. 32–48.

[27] D. Fowler and H. Meinhardt and P. Prusinkiewicz, "Modeling Seashells", *Computer Graphics (SIGGRAPH '92 Proceedings)*, Vol. 26, July 1992, pp. 379–388.

[28] M.-P. Gascuel, "An Implicit Formulation for Precise Contact Modeling between Flexible Solids", *Computer Graphics (SIGGRAPH '93 Proceedings)*, Anaheim, California, August 1993, pp. 313–320.

[29] A. Glassner, editor, *An Introduction to Ray Tracing*, Academic Press, 1989.

[30] T. Guiard-Marigny, N. Tsingos, A. Adjoudani, C. Benoit, and M.-P. Gascuel, "3D models of the lips for realistic speech animation", *Computer Animation'96*, D. Thalmann and N. Magnenat-Thalmann, Eds, Geneva (Switzerland), pp. 80–89.

[31] E. Haines, "A Proposal for Standard Graphics Environments", *IEEE Computer Graphics and Applications*, Vol. 7, No. 11, November 1987, pp. 3–5. The SPD package is available at ftp.princeton.edu: /pub/Graphics/SPD

[32] J. Hart, "Ray Tracing Implicit Surfaces", in *Course Notes 25, SIGGRAPH 1993, Modeling, Visualizing and Animating Implicit Surfaces* pages 13.1–13.15.

[33] J. Hart, "Implicit formulations of rough surfaces", Proceedings of *Implicit Surfaces '95*, Eurographics Workshop, April 1995, pp. 33–44.

[34] J. Hart, "Sphere tracing: A geometric method for the antialiased ray tracing of implicit surfaces", *The Visual Computer*, 12(10), pp. 527–545, December 1996.

[35] J. Hart and B. Baker, "Implicit Modeling of Tree Surfaces", Proceedings of *Implicit Surfaces '96*, October 1996, pp. 143–152.

[36] J. Hart, "Guaranteeing the Topology of an Implicit Surface Polygonization for Interactive Modeling", *Computer Graphics (SIGGRAPH '97 Proceedings)*, August 1997, pp. 279–286.

[37] J. Hart, A. Durr and D. Harsh, "Critical Points of Polynomial Metaballs", Proceedings of *Implicit Surfaces '98*, June 1998, Seattle, pp. 69–76.

[38] D. Kalra and A. Barr, "Guaranteed Ray Intersection with Implicit Surfaces", *Computer Graphics (SIGGRAPH '89 Proceedings)*, Vol. 23, No. 3, July 1989, pp. 297–306.

[39] Y. Kawaguchi, "Growth/Mysterious Galaxy", SIGGRAPH '83 *Film & Video Show*, issue 11, 1985.

[40] Y. Kawaguchi, "Growth III: Origin", SIGGRAPH '85 *Film & Video Show*, issue 22, 1985.

[41] Y. Kawaguchi, "The Fantastic Self-Organization in Cyberspace", *Computer Graphics*, Vol. 31, No. 1, February 1997, pp.16–17.

[42] J. McCormack and A. Sherstyuk, "Creating and Rendering Convolution Surfaces", *Computer Graphics Forum*, Vol. 17, No. 2, 1998, pp.113–120.

[43] J. Menon, "An Introduction to Implicit Techniques", *SIGGRAPH Course 11*, August 1996.

[44] D. Mitchell, "Robust Ray Tracing with Interval Arithmetic", *Proceedings of Graphics Interface '90*, Canadian Information Processing Society, Toronto, 1990, pp. 68–74.

[45] S. Muraki, "Volumetric shape description of range data using "Blobby Model"", *Computer Graphics (SIGGRAPH '91 Proceedings)*, Vol. 25, No. 4, Las Vegas, Nevada, July 1991, pp. 251–257.

[46] F. Nichols and M. Stachels, editors, *Marine Life of the Indo-Pacific Region*, Periplus Editions, 1996.

[47] Ning P. and Bloomenthal J., "An Evaluation of Implicit Surface Tilers", *IEEE Computer Graphics and Applications*, November 1993.

[48] H. Nishimura, H. Ohno, T. Kawata, I. Shirakawa and K. Omura, "LINKS-1: A Parallel Pipelined Multimicrocomputer System for Image Creation", *Proceedings of the Tenth International Symposium on Computer Architecture, ACM SIGARCH Newsletter*, Vol. 11, No. 3, 1983, pp. 387–394.

[49] M. Hirai, H. Nishimura, T. Kawata, I. Shirakawa and K. Omura, "Object Modeling By Distribution Function and an Efficient Method of Image Generation ", *Technical Report of TV Soc, IPD81-5*, 1983, pp.21–26, (in Japanese).

[50] H. Nishimura, M. Hirai, T. Kawai, T. Kawata, I. Shirakawa, and K. Omura, "Object Modelling by Distribution Function and a Method of Image Generation", *The Transactions of the Institute of Electronics and Communication Engineers of Japan*, 1985, Vol. J68-D, Part 4, pp. 718–725, in Japanese (English translation by Takao Fujuwara, Advanced Studies in Computer Aided Art and Design, Middlesex Polytechnic, England, 1989)

[51] A. Pasko, V. Pilyugin and V. Pokrovskiy, "Geometric Modeling in the analysis of trivariate functions", *Computers and Graphics*, Vol. 12, No. 3/4, 1988, pp. 429–446.

[52] A. Pasko, V. Adzhiev, A. Sourin, V. Savchenko, "Function representation in geometric modeling: concepts, implementation and applications", *The Visual Computer*, Vol. 11, No. 8, 1995, pp.429–446.

[53] H. Pedersen, "Decorating Implicit Surfaces", *Computer Graphics (SIGGRAPH '95 Proceedings)*, August 1995, pp. 291–300.

[54] K. Perlin and E. Hoffert, "Hypertexture", *Computer Graphics (SIGGRAPH '89 Proceedings)*, Vol. 23, July 1989, pp. 253–262.

[55] C. Pickover, "A Short Recipe for Seashell Synthesis", *IEEE Computer Graphics and Applications*, Vol. 9, No. 6, November 1989, pp. 8–11.

[56] *POV-Ray* , http://www.povray.org/

[57] W. Press, S. Teukolsky, W. Vetterling and B. Flannery, *Numerical Recipes in C: The Art of Scientific Computing*, second edition, Cambridge University Press, 1992.

[58] *Rayshade* , http://www-graphics.stanford.edu/~cek/rayshade/rayshade.html

[59] J. Schwarze, "Cubic and Quartic Roots", *Graphics Gems* (editor, Andrew S. Glassner), Academic Press, Cambridge, MA, 1990, pp. 404–407.

[60] G. Sealy and G. Wyvill, "Smoothing of three dimensional models by convolution", *Computer Graphics International '96 Proceedings*, June 1996, Pohang, Korea, pp. 184–190.

[61] *Shape Modeling and Computer Graphics with Real Functions*, http://www.u-aizu.ac.jp /public/www/labs/sw-sm/FrepWWW/F-rep.html

[62] A. Sherstyuk, *Ray tracing implicit surfaces: a generalized approach*, technical report No 96/290, Monash University, Dept. Computer Science, 1996.

[63] A. Sherstyuk, *Shells, Crabs and Seahorses: Expanding the Modeling Power of Implicit Surfaces*, technical report No 97/330, Monash University, Dept. Computer Science, 1997.

[64] A. Sherstyuk, "Ray-tracing with selective visibility", *Journal of graphics tools*, Vol. 1, No. 4, 1997.

[65] A. Sherstyuk, "Fast Ray Tracing Of Implicit Surfaces", *Implicit Surfaces'98*, Proceedings of the third international workshop on Implicit Surfaces, Seattle, USA, June 1998, pp. 145–153.

[66] J. Snyder and A. Barr, "Ray Tracing Complex Models Containing Surface Tessellations", *Computer Graphics (SIGGRAPH '87 Proceedings)*, Vol. 21, No. 4, July 1987, pp. 119–128.

[67] A. Sourin, A. Pasko, V. Savchenko, "Using real functions with application to hair modelling", *Computers and Graphics*, Vol. 20, No. 1, 1996, pp. 11–19.

[68] A. Sourin and A. Pasko, "Function Representation for Sweeping by a Moving Solid", *IEEE Transactions on Visualization and Computer Graphics"*, Vol. 2, No. 1, March 1996, pp. 11–18.

[69] B. Stander and J. Hart, "Guaranteeing the Topology of an Implicit Surface Polygonization for Interactive Modeling", *Computer Graphics (SIGGRAPH '97 Proceedings)*, August 1997, pp. 29–33.

[70] H. Tuy and L. Tuy, "Direct 2-D Display of 3-D Objects", *IEEE Computer Graphics and Applications*, Vol. 4, No. 10, October 1984, pp. 29–33.

[71] A. Watt and M. Watt, *Advanced Animation and Rendering Techniques*, the 2nd edition, ACM Press, Addison-Wesley Publishing Company, 1993.

[72] S. Wolfram, *The Mathematica Book*, Third edition, Wolfram Media, Inc. and Cambridge University Press, 1996.

[73] G. Wyvill, C. McPheeters and B. Wyvill, "Data Structure for Soft Objects", *The Visual Computer*, Vol. 2, No. 4, 1986, pp. 227–234.

[74] B. Wyvill, "SOFT", SIGGRAPH '86 *Electronic Theater and Video Review*, issue 24, 1986.

[75] G. Wyvill, C. McPheeters and B. Wyvill, "Animating Soft Objects", *The Visual Computer*, Vol. 2, No 4, Aug. 1986, pp. 235–242.

[76] G. Wyvill, B. Wyvill and C. McPheeters, "Solid Texturing of Soft Objects", *IEEE Computer Graphics and Applications*, Vol. 7, No. 12, December 1987, pp. 20–26.

[77] B. Wyvill, "The Great Train Rubbery", SIGGRAPH '88 *Electronic Theater and Video Review*, issue 26, 1988.

[78] B. Wyvill and G. Wyvill, "Field functions for implicit surfaces", *The Visual Computer*, Vol. 5, No. 1/2, 1989, pp.75–82.

[79] G. Wyvill and A. Trotman, "Ray Tracing Soft Objects", *CG International 90*, Springer Verlag, pp. 469–475, 1990.

[80] B. Wyvill and K. van Overveld, "Tiling Techniques for Implicit Skeletal Models", in *Implicit Surfaces for Geometric Modeling and Computer Graphics, SIGGRAPH 1996, Course Notes*, pp. C1.1–C1.26.

[81] R. Zonenschein, J. Gomes, L. Velho, and L. H. de Figueiredo, "Controlling Texture Mapping onto Implicit Surfaces with Particle Systems" Proceedings of *Implicit Surfaces '98*, June 1998, Seattle, pp. 131–139.

"If anybody wants to clap,"
said Eeyore when he had read this,
"now is the time to do it."
They all clapped.
"Thank you,"
said Eeyore.
"Unexpected and gratifying, if a little lacking in Smack."

"It's much better than mine,"
said Pooh admirably, and he really thought it was.
"Well,"
explained Eeyore modestly,
"it was meant to be."

– Eeyore from "The House at Pooh Corner"
by A. A. Milne