

# Nelson Max

## Education

BS, Harvard, Mathematics, 1963  
MA, Harvard, Mathematics, 1964  
PhD, Harvard, Mathematics, 1967

## Current Position

Distinguished Professor of Computer Science, University of California, Davis

## Honors

ACM Steven Anson Coons Award for Outstanding Creative Contributions to Computer Graphics, 2007 (presented in odd numbered years).

ACM Fellow

## Publications

1. 1967 Max, N. L. Homeomorphisms of  $S_n \times S_1$ . Bulletin of the American Mathematics Society 73(6):939-942.
2. 1970 Max, N. L. and C. D. Feustel. On a problem of R. H. Fox. Topology of Manifolds. Proceedings of the University of Georgia Topology of Manifolds Institute, Editors J. C. Cantrell and C. H. Edwards, Markham Publishing Co., Chicago, pp. 132-139.
3. 1970 Max, N. L. Computer Animation for Mathematical Films. Proceedings of the Eighth Annual UAIDE Conference, Butler Data Systems, pp. 245-254.
4. 1970 Max, N. L. Homotopy Groups of Embedding Spaces of Spheres in Spheres. Proceedings of the Georgia Topology Conference, University of Georgia, pp. 45-62.
5. 1971 Max, N. L. Computer Animation of Smooth Surfaces. Proceedings of the Ninth Annual UAIDE Meeting, Stromberg Datagraphix, pp. 227-240.
6. 1973 Max, N. L. Spherical Trigonometry and the Structure of Valinomycin. Biopolymers 12:1565-1574.
7. 1973 Max, N. L. Computer Animation of Smooth Surfaces, II. Proceedings of the Twelfth Annual UAIDE Meeting, National Microfilm Association, microfiche.
8. 1975 Max, N. L. and W. H. Clifford. Computer Animation of the Sphere Eversion. Computer Graphics 9(1):32-39.
9. 1976 Max, N. L. Computer Rendering of Lobster Neurons. Computer Graphics 10(2):243-245.
10. 1979 Max, N. L. ATOMLLL: Atoms with Shading and Highlights. Computer Graphics 13(2):165-173.
11. 1980 Pearlstein, R. A., S. K. Tripathy, R. Potenzzone, D. Malhotra, A. J. Hopfinger, G. Klopman and N. L. Max. Physical Association of Two Alkylators to Some DNA Sequences. Biopolymers 19:311-324.

12. 1980 Max, N. L. Computer Visualization of the DNA Molecule and Intercalating Drugs. *Medical Tribune of Japan*, July.
13. 1980 Max, N. L. and J. Blunden. Optical Printing in Computer Animation. *Computer Graphics* 14(3):171-177.
14. 1981 Max, N. L., D. Malhotra and A. J. Hopfinger. Computer Graphics and the Generation of DNA Conformations for Intercalation Studies. *Computers and Chemistry* 5:19-27.
15. 1981 Max, N. L. Turning a Sphere Inside Out. *La Recherche* 12:630-636.
16. 1981 Max, N. L., and T. Banchoff. Every Sphere Eversion has a Quadruple Point. *Contributions to Analysis and Geometry (Supplement, American Journal of Mathematics)*, Editors D. N. Clark, G. Pecelli, R. Sacksteder, Johns Hopkins University Press, Baltimore, pp. 191-209.
17. 1981 Max, N. L. High Resolution Color Raster Computer Animation of Space Filling Molecular Models. *Proceedings of the NCGA 1981 Conference*, National Computer Graphics Association, Inc., Washington D. C.

18. 1981 Max, N. L. Curves and their Parametrization. UMAP Modules 1981 Tools for Teaching, Birkhauser, Boston, pp. 368-388.
19. 1981 Hopfinger, A. J., Y. Nakata and N. Max. Quantitative Structure Activity Relationships of Anthracycline Antitumor Activity and Cardiac Toxicity Based Upon Intercalation Calculations. Proceedings of the International Symposium on Intermolecular Forces, Editor B. Pulman, Reidel, Dordrecht, Holland, pp. 431-444.
20. 1981 Max, N. L. Vectorized Procedural Models for Natural Terrain: Waves and Islands in the Sunset. Computer Graphics 15:(3):317-324.
21. 1982 Max, N. L. Computer Representation of Molecular Surfaces. Proceedings of the Fifteenth Hawaii International Conference on Systems Science, Journal of Medical Systems 6(5):485-499.
22. 1983 Max, N. L. Computer Representation of Molecular Surfaces. IEEE Computer Graphics and Applications 3(5):21-29.
23. 1983 Max, N. L. ATOMLLL with Transparency and Shadows. Proceedings of the Sixteenth Hawaii International Conference on System Sciences. 2:407-418.
24. 1983 Max, N. L. SIGGRAPH '84 Call for Omnimax Films. Computer Graphics 16:(3):73-76.
25. 1983 Max, N. L. Computer Graphics Distortion for IMAX and OMNIMAX Projection. Proceedings of Nicograph Conference. December 1-3, Tokyo, Japan.
26. 1984 Max, N. L. Atoms with Transparency and Shadows, Computer, Vision, Graphics and Image Processing 27:46-63.
27. 1985 Hirata, F., N. L. Max, D. Lerner, and T. Okada. Computer Graphics: The FACOM M-380 Creates an OMNIMAX Stereo Movie. Fujitsu 36(2):151-165 (In Japanese).
28. 1985 Max, N. L. and D. M. Lerner. A two-and-one-half-D Motion Blur Algorithm. Computer Graphics 19(3):85-93, July.
29. 1985 Max, N. L. We Are Born of Stars IEEE CG&A, (November 1985), pp. 4-11.
30. 1986 Max, N. L. Light Diffusion Through Clouds and Haze. Computer Vision, Graphics, and Image Processing 33:280-292.
31. 1986 Max, N. L. Shadows for Bump Mapped Surfaces, pp. 145-156. In Kunii, T. L. (Ed.), Advanced Computer Graphics, Springer-Verlag, Tokyo.
32. 1986 Max, N. L. Atmospheric Illumination and Shadows Computer Graphics 20(4):117-124.
33. 1986 Max, N. L. Carla's Island Revisited. The Visual Computer 2:171-173.
34. 1987 B. Cabral, Max, N. L., and R. Springmeyer. Bidirectional Reflection Functions from Surface Bump Maps. Computer Graphics 21(4):273-281.
35. 1987 R. F. Tilton, Jr., U. C. Singh, S. J. Weiner, M. L. Connolly, I. D. Kuntz, Jr., P. A. Kollman, N. L. Max, and D. A. Case. Computational Studies of the Interaction of Myoglobin and Xenon. J Molecular Biology 192:443-456.

36. 1987 H. F. Felder, H. Hartmann, M. Karplus, I. D. Kuntz, Jr., J. Kuriyan, F. Parak, G. Petsko, D. Ringe, R. Tilton, Jr., M. Connolly and N. L. Max. Thermal Expansion of a Protein. *Biochemistry* 26(1):254-261.
37. 1988 Max, N. L. Horizon Mapping: Shadows for Bump-Mapped Surfaces (a revised and expanded version of #31). *The Visual Computer* 4(2):109-117.
38. 1988 Max, N. L. and E. D. Getzoff. Spherical Harmonic Molecular Surfaces. *IEEE Computer Graphics and Application*, July 1988, pp. 42-50.
39. 1988 Max, N. L. The Two-pass Texture Mapping Algorithm Vectorized. In Computer Images and Hi-Vision, CG 88. Japan Society of Image Arts and Sciences.
40. 1989 Max, N. L. Smooth Appearance for Polygonal Surfaces. *The Visual Computer* 5(3):160-173.

**Merit to Professor, Step III, July 1, 1989**

- Aa1 41. 1989 Gwilliam, M. and Max, N. Atoms with Shadows - an Area-based Algorithm for Cast Shadows on Space-filling Molecular Models. *Journal of Molecular Graphics* 7(1):54-59 and color plate, p. 37.
- Ac1 42. 1989 Max, N. L. Stereo-image (short letter in Scientific Correspondence) *Nature*, Vol. 339 (11 May 1989), p. 105.
- Aa2/Aa1 43. 1989 Max, N. L. Polygon-based Post-Process Motion Blur, pp. 169-179. In N. M. Thalman and D. Thalman (Eds.), State of the Art in Computer Animation, Springer Verlag. Reprinted in the *Visual Computer* 1990 6(6):308-314.
- Ac2 44. 1989 Kakimoto, M., Hayashi, N., Oguchi, T., Santoh, S. and Max, N. Methods for Modeling and Mapping Branched Surfaces Using Generalized Cylinders. (Japanese, with English Abstract) *Information Processing Society of Japan, Study Group on Graphics and CAD, Bulletin no. 39-7* (August 21, 1989), pp. 1-8.
- Ad4 45. 1990 Max, N. L. Computer Animation in Mathematics, Science and Art, pp. 321-345. In D. Chudnovsky and D. Jenks (Eds.), Computers and Mathematics, Lecture Notes in Pure and Applied Mathematics, Volume 125. Marcel Dekker Publishers.
- Ad4/Ad1 46. 1990 Max, N. L. Turning a Sphere Inside Out. In appendix to previous publication. Also published in Japanese as Part 1, *Sugaku Seminar* 22(12):46-51, December 1983 and Part 2, *Sugaku Seminar* 23(1):63-71, January 1984.
- Aa1 47. 1990 Max, N. L. Anti-aliasing Scan-line data. *IEEE Computer Graphics and Applications* 10(1):18-30.
- Aa2 48. 1990 Max, N., Hanrahan, P. and Crawfis, R. Area and Volume Coherence for Efficient Visualization of 3D Scalar Functions. *Computer Graphics* 24(5):27-34 and color plate, p. 109.
- Aa1 49. 1990 Max, N. Cone Spheres. *Computer Graphics* 24(4):59-63.
- Ad1 50. 1990 Max, N., N. Hayashi and T. Wakabayashi. Computer Simulation and Animation of Muscle Cross-Bridge Motion. *Visualization and Computer Animation* 1(1):9-14.
- Ad1 51. 1990 Max, N. A Vectorized Object Rendering, Motion Blur and Compositing System (Japanese, with English abstract) *Fujitsu* 41(2):142-153.

- Aa1 52. 1991 Max, N. Unified Sun and Sky Illumination for Shadows Under Trees. *CVGIP: Graphical Models and Image Processing* 53(3):223-230.
- Aa2 53. 1991 Max, N. Computer Assisted Sphere Packings in Higher Dimensions, pp. 102-108. In G. M. Nielson and L. Rosenblum, (Eds.), Proceedings of Visualization '91, IEEE Computer Society Press, Los Alamitos, CA.
- Ab3 54. 1991 Max, N. Computer Animation of Photosynthesis (slightly revised English version of #51 above), pp. 25-39. In Proceedings of Second Eurographics Workshop on Animation and Simulation, Vienna, Austria.
- Aa4 55. 1991 Max, N. L. and G. Wyvill. Shapes and Textures for Rendering Coral, pp. 333-343. In N. M. Patrikalakis (Ed.), Scientific Visualization of Physical Phenomena, Springer-Verlag, Tokyo.
- Aa4 56. 1991 Max, N. An Optimal Filter for Reconstruction, pp. 101-104. In J. Arvo (Ed.), Graphics Gems II, Academic Press.

**Merit to Professor, Step IV , July 1, 1992**

- Ad1 57. 1992 Max, N. Another Harmony of the Spheres. *Nature* 355(6356):115-116.
- Ad1 58. 1992 Max, N. L. Computer Animation in Topology. *Forma* 6(2):61-84.
- Aa4 59. 1992 Max, N. L. and M. J. Allison. Linear Radiosity Approximations Using Vertex to Vertex Form Factors, pp. 318-323. In D. Kirk (Ed.), Graphics Gems III, Academic Press.
- Ad4 60. 1992 Max, N. L. Sorting for Polyhedron Compositing, pp. 259-268. In H. Hagen, H. Muller, and G. Nielson (Eds.), Scientific Visualization Seminar Book, Springer Verlag, Berlin.
- Aa2 61. 1992 Crawfis, R. and N. Max. Direct Volume Visualization of Three-Dimensional Vector Fields. *Proceedings, 1992 Workshop on Volume Visualization, ACM*, pp. 55-60.
- Aa2 62. 1992 Williams, P. and N. Max. A Volume Density Optical Model. *Proceedings, 1992 Workshop on Volume Visualization, ACM*, pp. 61-68.
- Aa2 63. 1992 Max, N., R. Crawfis and D. Williams. Visualizing Wind Velocities by Advecting Cloud Textures. *Proceedings of Visualization '92, IEEE Computer Society Press*, pp. 179-184.
- Aa2 64. 1992 Springmeyer, R., Blattner, M. and N. Max. A Characterization of the Scientific Data Analysis Process. *Proceedings of Visualization '92. IEEE Computer society Press*, pp. 235-242.
- Ad2 65. 1992 Max, N. Scientific Documentary Animation: How Much Accuracy is Enough? In T. L. Kunii (Ed.), Visual Computing: Integrating Computer Graphics With Computer Vision, Springer Verlag, Tokyo, pp 395-410.
- A(d+a)1 66. 1993 Max, N. R. Crawfis, and D. Williams. Visualization for Climate Modeling", *IEEE Computer Graphics and Applications*. (July 1993) 13:34-40.
- Aa2 67. 1993 Max, N. and R. Troutman. Optimal Hemicube Sampling. *Proceedings of the Fourth Eurographics Workshop on Rendering, Eurographics Technical Report EG 93 RW, ISSN 1017-4656*, pp. 185-200 plus Addendum, pp. 348-351.

- Aa2 68. 1993 Troutman, R. and N. Max. Radiosity Algorithms for Higher Order Finite Element Methods. Computer Graphics Proceedings, Annual Conference Series, 1993, ACM Press, pp. 209-212.
- Aa2 69. 1993 Max, N., B. Becker, and R. Crawfis. Flow Volumes for Interactive Vector Field Visualization. Proceedings of Visualization '93. IEEE Computer Society Press, Los Alamitos, Ca., pp. 19-24.
- Aa2 70. 1993 Crawfis, R. and N. Max. Texture Splats for 3D Vector and Scalar Field Visualization. Proceedings of Visualization '93, IEEE Computer Society Press, Los Alamitos, CA., pp. 261-266.
- Ad2 71. 1993 Max, N., R. Crawfis, and B. Becker. New Techniques in 3D Scalar and Vector Field Visualization. Proceedings of Pacific Graphics '93, pp. 301-315.
- Aa2 72. 1993 Crawfis, R., Max, N., Becker, B., and B. Cabral. Volume Rendering of 3D Scalar and Vector Fields at LLNL. Proceedings of Supercomputing '93. IEEE Computer Society Press, Los Alamitos, CA, pp. 570-576.
- Aa2 73. 1993 Becker, B. and N. Max. Smooth Transitions between Bump Rendering Algorithms. Computer Graphics Proceedings, Annual Conference Services, 1993, ACM Press, pp. 183-190.
- Ad2 74. 1994 Max, N. Computer Animation of Clouds. Proceedings of Computer Animation '94. IEEE Computer Society Press, Los Alamitos, CA, pp. 167-174.
- Aa1 75. 1994 Max, N. L. and B. G. Becker. Bump Shading for Volume Textures. IEEE Computer Graphics and Applications 14:18-20.
- Aa3 76. 1994 Max, N. Efficient Light Propagation for Multiple Anisotropic Volume Scattering, pp 87-104. In G. Sakas, et al. (Eds.), Fifth Eurographics Workshop on Rendering, Darmstadt, Germany.
- Ab3 77. 1994 Max, N. Optical Models for Volume Rendering. Fifth Eurographics Workshop on Visualization in Scientific Computing, Rostock, Germany, May 30-June 1, 1994.

**Merit to Professor, Step V, July 1, 1995**

- Aa2 78. 1994 Max, N., R. Crawfis, and C. Grant, "Visualizing 3D Velocity Fields Near Contour Surfaces" Proceedings of Visualization '94, Washington, D.C., IEEE Computer Society Press, 1994, pp. 248 - 255.
- Aa2 79. 1994 Stein, C., B. Becker, and N. Max. Sorting and Hardware Assisted Rendering for Volume Visualization. Proceedings of 1994 Symposium on Volume Visualization, Washington, D.C., ACM Press 1994, pp. 83 - 89, color plate p. 130.
- A(d+a)1 80. 1994 Crawfis, R., N. Max, and B. Becker. Vector Field Visualization. IEEE Computer Graphics and Applications, vol. 14, No. 5, September 1994 pp. 50-56.
- Ad3 81. 1994 Max, N. Mathematical Models for Volume Rendering and Neutron Transport. Proceedings of the Second Workshop on Super Simulations for Nuclear Power Plants. Nuclear Power Engineering Corporation, Tokyo, 1994, pp. 11 - 16

- Aa2 82. 1995 Becker, B. G., D. A. Lane, and N. L. Max. Unsteady Flow Volumes. Proceedings of Visualization '95, Atlanta, Georgia, IEEE Computer Society Press, 1995, pp 329 - 335, color plate CP-39.
- Aa1 83. 1995 Max, N. Optimal Sampling for Hemicubes. IEEE Transactions on Visualization and Computer Graphics, vol. 1 no. 1, pp. 60-76, 1995.
- Aa1 84. 1995 Max, N. Optical Models for Direct Volume Rendering. IEEE Transactions on Visualization and Computer Graphics, vol. 1 no. 2, June 1995, pp. 99 - 108.
- Aa(3+4) 85. 1995 Max, N. and K. Ohsaki. Rendering Trees from Precomputed Z-Buffer Views Proceedings of the 6th Eurographics Workshop on Rendering, June 1995, published as Rendering Techniques '95. P. M. Hanrahan and W. Purgathofer, (eds.) Springer, Vienna, 1995, pp.74 - 81, color plates pp. 359 - 360.
- Ad3 86. 1995 Max, N., R. Crawfis and B. Becker. Applications of Texture Mapping to Volume and Flow Visualization. Proceedings of Graphicon '95, July 1995, pp. 108 - 113.
- Ab2 87. 1995 Max, N. and R. Crawfis. Advances in Scientific Visualization. IS&T/SPIE Symposium on Electronic Imaging: Science and Technology, San Jose, 1995, Technical Conference Vol. 2401, pp. 340 - 345.
- Aa3 88. 1996 Max, N. and B. Becker. Flow Visualization Using Moving Textures. Proceedings of the ICAS/LaRC Symposium on Visualizing Time-Varying Data, NASA Conference Publication 3321, D. C. Banks, T. W. Crockett, and K. Stacy, (eds.) 1996, pp. 77 - 87.
- Aa(3+4) 89. 1996 Max, N. Hierarchical Rendering of Trees from Precomputed Multi-Layer Z-Buffers. In Rendering Techniques, '96, X. Pueyo and P Schroeder (Eds.), Springer, New York. Proceedings of 7th Eurographics Workshop on Rendering, pp. 165-174.
- Aa(3+4) 90. 1997 Wittenbrink, Craig M., K. Kim, J. Story, A. Pang, K. Hollerbach and N. Max. PermWeb: Remote Parallel and Distributed Volume Visualization. Proceedings of the SPIE Visual Data Exploration and Analysis IV, SPIE's Electronic Imaging '97, Feb. 1997, San Jose, CA.
- Aa(3+4) 91. 1997 Max, N., C. Mobley, B. Keating, and E.-H. Wu. Plane-Parallel Radiance Transport for Global Illumination in Vegetation, pp. 239-250. Rendering Techniques '97. J. Dorsey and P. Slusallek (Eds.), Springer, Vienna. Proceedings of the 8th Eurographics Workshop on Rendering, pp. 239-250.

**Merit to Professor, Step VI, July 1, 1998**

- Aa4 92.\* 1998 Max, N. "My Six Years to Evert a Sphere", in "Graphics Remembrances" compiled by Jules Blumenthal, IEEE Annals of the History of Computing, Vol. 20 No. 2 p. 42.
- Aa1 93.\* 1998 Williams, P., Max, N., and C. Stein. A High Accuracy Volume Renderer for Unstructured Data. IEEE TVCG, 4(1):37-54.
- Ad4 94.\* 1998 Max, N. Molecular Models with Shadows (in Japanese). In: The Treasure of Computer Graphics. Edited by M. Fujihata. Just System, Inc., pp. 38 - 41.
- Ad4 95.\* 1998 Max, N. Carla's Island (in Japanese). In: The Treasure of Computer Graphics. Edited by M. Fujihata. Just System, Inc., pp. 150 - 153.

- Aa2 96.\* 1998 Max, N. Visualizing Hilbert Curves. Proceedings of IEEE Visualization, pp. 447 - 450.
- Aa1 97.\* 1998 Max, N. A one pass version of two-pass image resampling. Journal of Graphics Tools, 3(1):33-41.
- Aa2 98.\* 1999 Comba, J., J. Klosowski, N. Max, J. Mitchell, C. Silva, and P. Williams. Fast polyhedral cell sorting for interactive rendering of unstructured grids. Proceedings of Eurographics, pp. C369-376.
- Ad4 99.\* 1999 Max, N., R. Crawfis and B. Becker. Edited by C. Bajaj. Applications of Texture Mapping to Volume and Flow Visualization. In: Data Visualization Techniques. John Wiley and Sons, pp. 87-105.
- Ad4 100.\* 1999 Crawfis, R. and N. Max. Edited by C. Bajaj. Vector Field Visualization. In: Data Visualization Techniques. John Wiley and Sons, pp. 75-86.
- Ad1 101.\* 1999 Max, N. Volume rendering by polyhedron projection (in Japanese). Nikkei Science (Japanese version of Scientific American), 29(6):96-98.
- Aa2 102.\* 1999 Max, N., O. Deussen, and B. Keating. Hierarchical Image-Based Rendering using Texture Mapping Hardware. Rendering '99. Proceedings of 10<sup>th</sup> Eurographics Workshop on Rendering. Springer Verlag, pp. 57 - 62.
- Aa2 103.\* 1999 Keating, B. and N. Max. Shadow Penumbras for Complex Objects by Depth-Dependent Filtering of Multi-Layer Depth Images. Rendering '99. Proceedings of 10th Eurographics Workshop on Rendering. Springer Verlag, pp. 197 - 212.
- Aa1 104.\* 1999 Wang, W., E. Wu and N. Max. A selective rendering method for data visualization. Journal of Visualization and Computer Animation, 10(3):123 - 131.
- Aa1 105.\* 2000 Max, N. Weights for Computing Vertex Normals from Facet Normals. Journal of Graphics Tools, 4(2):1 - 6.
- Ad1 106.\* 2000 Max, N., P. Williams, and C. Silva. Approximate Volume Rendering for Curvilinear and Unstructured Grids by Hardware-Assisted Polyhedron Projection. International Journal of Imaging Systems and Technology, 11:53-61.
- Ab2 107.\* 2000 Crawfis, R., H. W. Shen, and N. Max. Flow Visualization Techniques for CFD using Volume Rendering. Ninth International Symposium on Flow Visualization. Edinburgh, Scotland. CD edited by I.M. Grant and G. M. Carlomagno, ISBN 0-9533991-1-7.

**Merit to Professor, Step VII, July 1, 2001**

- Aa2+ 108.\* 2001 Greg Schussman and Nelson Max, "Hierarchical Perspective Volume Rendering using Triangle Fans", Volume Graphics 2001, June 21-22, 2001, Stony Brook, NY, pp. 195 - 200
- Aa2 109.\* 2001 Janine Bennett, Richard Cook, Nelson Max, Deborah May, and Peter Williams, "Parallelizing a High Accuracy Hardware-Assisted Volume Renderer for Meshes with Arbitrary Polyhedra", IEEE Symposium on Parallel and Large Data Visualization and Graphics, October 22-23, 2001, pp. 101 - 106.



- Aa2 110.\* 2001 Dan Laney, Mark Duchaineau, and Nelson Max, "A Selective Refinement Approach for Computing the Distance Function of Curves", VisSym 2001, Ascona, Switzerland, May 28-30, 2001, pp. 213 – 222.
- Ab2 111.\* 2002 David Wiley, Henry Childs, Bernd Hamann, Kenneth Joy, and Nelson Max, "Using Quadratic Simplicial Elements for Hierarchical Approximation and Visualization", in: Erbacher, R.F., Chen, P.C., Groehn, M., Roberts, J.C. and Wittenbrink, C.M., eds., Visualization and Data Analysis 2002, Proc. SPIE Vol. 6565, SPIE - The International Society for Optical Engineering, Bellingham, Washington, pp. 32 – 43.
- Aa2 112.\* 2002 David Wiley, Henry Childs, Bernd Hamann, Kenneth Joy, and Nelson Max, "Best Quadratic Spline Approximation for Hierarchical Visualization", Proceedings of joint Eurographics – IEEE TVCG Symposium on Visualization, 2002, pp. 133 – 140.
- Aa1+ 113.\* 2002 Nelson Max "Consistent Subdivision of Convex Polyhedra into Tetrahedra", journal of graphics tools, vol. 6, no. 3, 2002, pp. 29 - 36.
- Aa2 114.\* 2002 Dan Laney, Mark Duchaineau, Martim Bertram, and Nelson Max "Multiresolution Distance Volumes for Progressive Surface Compression", 3D Data Processing, Visualization, and Transmission Conference, Padova, Italy, June 19 - 21, 2002, pp. 470 – 479.
- Ad3 115.\* 2002 Nelson Max, Illumination under Trees, Human and Computer 2002 proceedings, Aizu Japan, Sept 11 - 14, 2002, pp. 126 - 137.
- Ad1 116.\* 2002 Nelson Max and Brett Keating, Illumination under Trees, 3D Forum, Vol. 16 No. 4, 2002, pp. 123 – 134.
- Aa2 117.\* 2002 George Chen, Li Hong, Kim NG, Peter McGuinness, Christian Hofstet, Yang Liu, and Nelson Max, "Light Field Duality: Theory and Applications", ACM Symposium on Virtual Reality Software and Technology, November 11-13, 2002, Hong Kong, pp. 9 – 16.
- Aa3 118.\* 2002 Oliver Kreylos, Bernd Hamann, Nelson Max, Silvia Crivelli, and E. Wes Bethel, "Interactive Protein Manipulation" in U C Davis Student Workshop on Computing, Oct. 5, 2002, U C Davis TR CSE-2002-28.
- Ac2 119.\* 2002 Kreylos, O., Max, N., and Crivelli, S., ProtoShop: Interactive Design of Protein Structures, in: Moul, J., Fidelis, K., Zemla, A, and Hubbard, T., eds., Proceedings of CASP5 - Fifth Meeting on the Critical Assessment of Techniques for Protein Structure Prediction, Pacific Grove, California, December 1-5, 2002, pp. A224-A225
- Ad2 120.\* 2003 Nelson Max, Peter Williams, Claudio Silva, and Richard Cook, "Volume Rendering for Curvilinear and Unstructured Grids", Proceedings of Computer Graphics International 2003, pp. 210 - 215.
- Aa2+ 121.\* 2003 Oliver Kreylos, Nelson Max, Bernd Hamann, Silvia Crivelli, and E. Wes Bethel, "Interactive Protein Manipulation", Proceedings of IEEE Visualization 2003, pp. 581 – 588.
- Ad1 122.\* 2003 George Chen, Li Hong, Kim NG, Peter McGuinness, Christian Hofstet, Yang Liu, and Nelson Max, "The Use of Hyperlines in Light Fields, ST Journal of System Research, Number 0, pp. 74 – 83.
- Aa4+ 123.\* 2003 Nelson Max, Peter Williams, and Claudio Silva, "Cell Projection of Meshes with Non-Planar Faces", F.H.Post, G-P.Bonneau, and G.M.Nielson (editors), DATA VISUALIZATION: THE STATE OF THE ART – Proceedings of the

Dagstuhl Scientific Visualization Seminar, 22-26 May 2000, Kluwer Academic Publishers, 2003, pp. 157 – 168.

- Ac4 124.\* 2003 David Wiley, Martin Bertram, Benjamin Jordan, Bernd Hamann, Kenneth Joy, Nelson Max, and Gerik Scheuermann, "Hierarchical Spline Approximations" in Farin, G.; Hamann, B.; Hagen, H., (Eds.) "Hierarchical and Geometrical Methods in Scientific Visualization", Springer, Vienna, 2003, pp. 63 – 88.
- Ac3 125.\* 2003 Koichi Onoue, Nelson Max, and Tomoyuki Nishita, "Bump Map Shadows on Curved Surfaces" (in Japanese, with English abstract), Graphics and CAD Symposium, No. 87, Information Processing Society of Japan, 2003.
- Ad1 126.\* 2004 Christian Hofsetz, George Chen, Nelson Max, Kim NG, Yang Liu, Li Hong, and Peter McGuiness, "Light Field Rendering Using Colored Point Clouds, A Dual Space Approach", Presence, MIT Press, Volume 13 no. 6, December 2004 pp. 726 – 741.

### **Merit to Professor, Step VIII, July 1, 2004**

Note: Publications 127 and 128 just below are classified as Aa(1/3) because these two papers were presented at the 2004 WSCG conference, and also accepted for publication in the Journal of WSCG. As with many conferences, the best papers were selected for journal publication, and in this year, 71 of the 151 papers accepted and presented were so selected. The Journal of the WSCG is available in printed form only to participants of the conference, but is available freely online at [http://wscg.zcu.cz/DL/wscg\\_DL.htm](http://wscg.zcu.cz/DL/wscg_DL.htm) .

- Aa(1/3) 127.\* 2004 Yang Liu, George Chen, Nelson Max, Christian Hofsetz, and Peter McGuiness, "Visual Hull Rendering with Multi-view Stereo Refinement", Journal of WSCG, Vol. 12, No. 2, 2004, pp. 261 – 268.
- Aa(1/3) 128.\* 2004 Nelson Max, Greg Schussman, Ryo Miyazaki, Kei Iwasaki, and Tomoyuki Nishita, "Diffusion and Multiple Anisotropic Scattering for Global Illumination in Clouds", Journal of WSCG, Vol. 12, No. 2, 2004, pp. 277 – 284.
- +Aa1 129.\* 2004 Richard Cook, Nelson Max, Claudio Silva, and Peter Williams, "Image-Space Visibility Ordering for Cell Projection Volume Rendering of Unstructured Data", IEEE Transactions on Visualization and Computer Graphics, Vol. 10 No. 6, pp. 695 – 707.
- +Aa1 130.\* 2004 Christian Hofsetz, Kim Ng, Nelson Max, George Chen, Yang Liu, and Peter McGuiness, "Image Based Rendering of Range Data with Estimated Depth Uncertainty", IEEE Computer Graphics and Applications, Vol. 24 No. 4, pp. 34 – 42.
- +Aa1 131.\* 2004 Nelson Max, "Hierarchical Molecular Modelling with Ellipsoids", Journal of Molecular Graphics, Vol. 23, No. 3, pp. 233 – 238.
- Aa1 132.\* 2004 Silvia Crivelli, Oliver Kreylos, Bernd Hamann, Nelson Max, and Wes Bethel, "ProteinShop: A Tool for Interactive Protein Manipulation and Steering", Journal of Computer Aided Molecular Design, Vol. 18, pp. 271 - 285.
- Aa2 133.\* 2004 Koichi Onoue, Nelson Max, and Tomoyuki Nishita, "Real-time Rendering of Bumpmap Shadows Taking Account of Surface Curvature", Proceedings, International Conference on Cyberworlds 2004, pp. 312 – 318.
- Aa1 134.\* 2005 Eric Lum, Kwan-Liu Ma, and Nelson Max, "Calculating Radiosity Form Factors using Programmable Graphics Hardware", Journal of Graphics Tools, Vol. 10 No. 4, pp. 61 – 71.

- Aa4 135.\* 2005 Nelson Max, Weights for Computing Vertex Normals from Facet Normals, expanded an updated version of 1999 paper #105, reprinted in "Graphics Tools – The jgt Editor's Choice", edited by Ronen Barzel, A K Peters, pp. 75 – 81, (reprinted from paper 105 above, with new material added at the end).
- Aa2 136.\* 2005 Christian Hofsetz and Nelson Max, "Hardware-assisted Visibility Ordering Technique for Point-Based and Volume Rendering Data, SIBGRAPH 2005 Proceedings, pp. 281 – 288.
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