

# Larry L. Schumaker

## I. Biographical Data

### A. Education

1. B.S. Mathematics, S.D. School of Mines, June, 1961
2. M.S. Mathematics, Stanford University, June, 1962
3. PhD Mathematics, Stanford University, January, 1966

### B. Present Position

1. Stevenson Professor of Mathematics, Vanderbilt University, 1988 –

### C. Previous Teaching and Research Positions

1. Staff Mathematician, Hughes Aircraft Co., Summers, 1961 – 1963
2. Research Assistant, Mathematics and Computer Science, Stanford University, 1964 – 1965
3. Instructor, Computer Science Dept., Stanford University, 1966
4. Visiting Research Member, Mathematics Research Center, University of Wisconsin, 1966 – 1968
5. Assistant Professor of Mathematics, University of Texas, 1968 – 1969
6. Associate Professor of Mathematics, University of Texas, 1969 – 1974
7. Professor of Mathematics, University of Texas, 1974 – 1979
8. Professor of Mathematics, Texas A&M University, 1981 – 1988
9. Director, Center for Approximation Theory, Texas A&M University, 1981 – 1988

### D. Visiting Teaching and Research Positions

1. Visiting Research Member, Mathematics Research Center, University of Wisconsin, 1973 – 1974
2. Visiting Professor, University of Munich, Germany, 1974 – 1975
3. Visiting Professor, Free University of Berlin, Germany, 1978 – 1979
4. Visiting Researcher, Hahn-Meitner Atomic Energy Laboratories, Berlin, Germany, 1978 – 1979
5. Visiting Professor of Mathematics, Texas A&M University, 1980 – 1981
6. Visiting Professor, University of Sao Paulo, Brazil, 5/1981 – 8/1981
7. Visiting Professor, University of Würzburg, W. Germany, 5/1984 – 8/1984
8. Visiting Professor, University of Würzburg, W. Germany, 5/1987 – 8/1987
9. Visiting Professor, University of Munich, W. Germany, 1988 – 1989.

### *E. Other Experience*

1. Candidate for the United States Senate in South Dakota, 1980

### *F. Honors*

1. Hughes Aircraft Masters Fellow
2. National Science Foundation Graduate Fellow
3. Humboldt Fellow, German Federal Republic, 1978 – 1979
4. Student Council Teaching Excellence Award, Texas A&M University, 1981
5. Centennial Outstanding Graduate Award, S.D. School of Mines & Technology, 1985
6. Humboldt Prize, Humboldt Foundation, Federal Republic of Germany, 1989.
7. John Gregory Award in Geometric Modelling, DFKI, Germany, 1999.
8. Birthday issue of Journal of Computational and Applied Mathematics, **119** (2000), 21 contributed papers, 412 pp.

### *G. Biographical Listings*

1. American Men of Science
2. American Men and Women of Science
3. Dictionary of International Biography
4. Men of Achievement
5. Who's Who in American Universities and Colleges
6. Who's Who in the Southeast
7. Who's Who in the South and Southwest
8. Who's Who in American Education
9. Who's Who in Technology Today
10. Who's Who in Science and Engineering
11. Who's Who
12. Who's Who in the World
13. Who's Who in Sciences Higher Education

### *H. Professional Societies*

1. Society for Industrial and Applied Mathematics

### *C. Member Editorial Board of Journals*

1. *Computer Aided Geometric Design*, North Holland, 1984 – .
2. *Constructive Approximation*, Springer-Verlag, 1985 – .
3. *Advances in Computational Mathematics*, J. Balzer AG, 1992 – .
4. *Mathematics of Computation*, American Math. Society, 1989 – 1992.
5. *Revista de Matemáticas Aplicadas*, Univ. of Santiago, Chile, 1991 – 1995.

### G. Graduate Students

1. Randolph Brasch, M.A., 1969, Univ. of Texas, Computation of  $Lg$ -splines
2. Robert Pratt, M.A., 1971, Univ. of Texas, A comparison of certain algorithms for the numerical computation of interpolating natural spline functions
3. Thomas Anderson, M.S., 1971, Univ. of Texas, On best spline approximation
4. Patricia Copley, PhD, 1974, Univ. of Texas Structure and characterization of  $pLg$ -splines
5. Tom Lyche, PhD, 1975, Univ. of Texas, Discrete polynomial splines and applications
6. M.S. Hsiang, M.A., 1977, Univ. of Texas, A comparison of methods for fitting surfaces to scattered data
7. Kin-Chy Woo, M.A., 1978, Univ. of Texas, The effectiveness of interpolating programs
8. Chui Li Hu, M.S., 1985, Texas A&M Univ.
9. Mohammad Hasan, M. S., 1988, Texas A&M Univ.
10. Dwight Diener, PhD, 1988, Texas A&M Univ., Dimension of spaces of piecewise polynomials
11. Adel Kh. Ibrahim, PhD, 1989, Suez Canal University, On the dimension of multivariate spline spaces
12. Lu Han, MS, 1993, Vanderbilt Univ.
13. Ethan Rutter, MS, 1994, Vanderbilt Univ.
14. Greg Fasshauer, PhD, 1995, Vanderbilt Univ. (Asst. Prof., Illinois Inst. Tech.)
15. Sonya Stanley, PhD, 1996, Vanderbilt Univ. (Asst. Prof., Samford Univ.)
16. X. L. Liu, MS 1997, Vanderbilt Univ.
17. David Assaf, PhD, May, 1997, Vanderbilt Univ.
18. Tanya Morten, PhD, May, 2000, Vanderbilt Univ.
19. Vera Rayevskaya, PhD, Dec. 2003, Vanderbilt Univ.
20. Tatiana Sorokina, PhD, May, 2004, Vanderbilt Univ.
21. Yulyia Babenko, Vanderbilt Univ., Ph D, May, 2006, Vanderbilt Univ.

### IV. Published papers

1. Characterization of moment points in terms of Christoffel numbers, with S. Karlin, *J. d'Analyse* **20** (1967), 213–231.
2. The fundamental theorem of Algebra for Tchebycheffian monosplines, with S. Karlin, *J. d'Analyse* **20** (1967), 233–270.
3. Representation theorems for certain classes of generalized polynomials induced by Tchebycheff systems and applications to extremal problems, *J. d'Analyse* **21** (1968), 313–335.
4. Uniform approximation by Tchebycheffian spline functions, *J. Math. Mech.* **18** (1968), 369–377.
5. Uniform approximation by Tchebycheffian spline functions, II. Free knots, *SIAM J. Numer. Anal.* **5** (1968), 647–656.
6. A note on obtaining natural spline functions by the abstract approach of Atteia and Laurent, with J. Jerome, *SIAM J. Numer. Anal.* **5** (1968), 657–663.

7. Iterated deferred corrections for initial value problems, with J. Daniel and V. Pereyra, *Acta Cient. Venezolana* **19** (1968), 128–134.
8. A differential equation approach to interpolation at extremal points, with C. Fitzgerald, *J. d'Analyse* **22** (1969), 117–134.
9. On approximation by polynomials having restricted ranges, with G. D. Taylor, *SIAM J. Numer. Anal.* **6** (1969), 31–36.
10. On  $Lg$ -splines, with J. W. Jerome, *J. Approx. Theory* **2** (1969), 29–49.
11. Approximation by splines, in *Theory and Application of Spline Functions*, T. N. Greville (ed.), Academic Press, New York, 1969, 65–85.
12. Some algorithms for the computation of interpolating and approximating spline functions, in *Theory and Application of Spline Functions*, T. N. Greville (ed.), Academic Press, N.Y., 1969, 87–102.
13. Splines via optimal control, with O. L. Mangasarian, in *Approximation with Special Emphasis on Spline Functions*, I. J. Schoenberg (ed.), Academic Press, N.Y., 1969, 119–156.
14. On the smoothness of best spline approximation, *J. Approx. Theory* **2** (1969), 410–418.
15. Uniform generalized weight function polynomial approximation with interpolation, with H. L. Loeb, D. C. Morsund, and G. D. Taylor, *SIAM J. Numer. Anal.* **6** (1969), 284–293.
16. Characterization of functions with higher order derivatives in  $L^p$ , with J. W. Jerome, *Trans. Amer. Math. Soc.* **143** (1969), 363–371.
17. Application of  $\epsilon$ -entropy to the computation of  $n$ -widths, with J. W. Jerome, *Proc. Amer. Math. Soc.* **22** (1969), 719–722.
18. A constrained rational approximation problem in filter design, *Proc. of the International Conference on Constructive Function Theory*, Bulgarian Academy of Sciences, Sofia, 1970, 309–314.
19. Discrete splines via mathematical programming, with O. L. Mangasarian, *SIAM J. Control* **9** (1971), 174–183.
20. Local bases and computation of  $g$ -splines, with J. W. Jerome, *Methoden und Verfahren der Math. Physik* **5** (1971), 171–199.
21. Saturation of positive operators, with G. G. Lorentz, *J. Approx. Theory* **5** (1972), 413–424.
22. Computation of smoothing and interpolating natural splines via local bases, with T. Lyche, *SIAM J. Numer. Anal.* **10** (1973), 1027–1038.
23. Best summation formulae and discrete splines, with O. L. Mangasarian, *SIAM J. Numer. Anal.* **10** (1973), 448–459.
24. On a method of Carasso and Laurent for constructing interpolating splines, with M. J. Munteanu, *Math. Comp.* **27** (1973), 317–325.
25. Direct and inverse theorems for multidimensional spline approximation, with M. J. Munteanu, *Indiana Math. J.* **23** (1973), 461–470.
26. Characterizations of absolute continuity and essential boundedness for higher derivatives, with J. W. Jerome, *J. Math. Anal. Appl.* **42** (1973), 452–465.

27. On the convergence of cubic interpolating splines, with T. Lyche, in *Spline Functions and Approximation Theory*, A Meir and A. Sharma (eds.), Birkhäuser Verlag, Basel, 1973, 169–189.
28. Constructive aspects of discrete polynomial spline functions, in *Approximation Theory*, G. G. Lorentz (ed.), Academic Press, N.Y. 1973, 469–476.
29. Some multidimensional spline approximation methods, with M. J. Munteanu, *J. Approx. Th.* **10** (1974), 23–40.
30. Procedures for computing smoothing and interpolating natural splines, with T. Lyche, *Commun. ACM* **17** (1974), 463–467.
31. Computation of  $g$ -splines via a factorization method, with H. Eidson, *Commun. ACM* **17** (1974), 526–530.
32. On the distance to a class of generalized splines, with J. W. Jerome, in *Linear Operators and Approximation II*, P. Butzer and S. Nagy (eds.), Birkhäuser Verlag, Basel, 1974, 503–517.
33. On the closedness of the linear image of a set with applications to generalized spline functions, with J. W. Daniel, *J. Applicable Anal.* **4** (1974), 191–205.
34. Local spline approximation methods, with T. Lyche, *J. Approx. Theory* **15** (1975), 294–325.
35. Local support bases for a class of spline functions, with J. W. Jerome, *J. Approx. Theory* **16** (1976), 16–27.
36. Toward a constructive theory of generalized spline functions, in *Spline Functions, Karlsruhe 1975*, K. Boehmer, G. Meinardus, and W. Schempp (eds.), Lecture Notes 501, Springer-Verlag, Heidelberg, 1976, 265–329.
37. On a collocation method for singular two-point boundary value problems, with G. W. Reddien, *Numer. Math.* **25** (1976), 427–432.
38. Fitting surfaces to scattered data, in *Approximation Theory II*, C. K. Chui, G. G. Lorentz, and L. L. Schumaker (eds.), Academic Press, N.Y. 1976, 203–268.
39. Nonlinear classes of splines and variational problems, with J. W. Baumeister, *J. Approx. Theory* **18** (1976), 63–73.
40. Zeroes of spline functions and applications, *J. Approx. Theory* **18** (1976), 152–168.
41. On Tchebycheffian spline functions, *J. Approx. Theory* **18** (1976), 278–303.
42. On calculating with B-splines II, Integration, with C. deBoor and T. Lyche, in *Numerische Methoden der Approximations Theorie*, Vol. 3, L. Collatz, G. Meinardus, and H. Werner (eds.), Birkhäuser Verlag, Basel, 1976, 123–146.
43. Spline solution of linear initial- and boundary-value problems, with H. D. Eidson, in *ISNM 32*, Birkhäuser Verlag, Basel, 1976, 67–80.
44. Two-stage spline methods for fitting surfaces, in *Quantitative Approximation*, R. Schaback and K. Scherer (eds.), Lecture Notes 556, Springer-Verlag, Berlin, 1976, 378–389.
45. On  $pLg$ -splines, with P. Copley, *J. Approx. Theory* **23** (1978), 1–28.
46. Lower bounds for spline approximation, *Banach Center Publ.* **4** (1979), Z. Ciesielski (ed.), 213–223.
47. Error bounds for the approximation of Green's kernels by splines, with G. Hämmerlin, *Numer. Math.* **33** (1979), 17–22.

48.  $L_2$  approximation by splines with free knots, in *Approximation in Theorie und Praxis*, G. Meinardus (ed.), Biblio. Inst., Mannheim, 1979, 157–182.
49. On the dimension of spaces of piecewise polynomials in two variables, in *Multivariate Approximation Theory*, W. Schempp and K. Zeller (eds.), Birkhäuser Verlag, Basel, 1979, 396–412.
50. A dual basis for  $L$ -splines and applications, with K. Scherer, *J. Approx. Theory* **29** (1980), 151–169.
51. Procedures for kernel approximation and solution of Fredholm integral equations of the second kind, with G. Hämmerlin, *Numer. Math.* **34** (1980), 125–141.
52. The use of spline functions for the polar representation of 3-dimensional objects, in *Picture Processing*, K. S. Fu and T. L. Kunii (eds.), Springer, N. Y., 1982, 96–106.
53. On recursions for generalized splines, *J. Approx. Theory* **36** (1982), 16–31.
54. The set of continuous selections of a metric projection in  $C(X)$ , with J. Blatter, *J. Approx. Theory* **36** (1982), 141–155.
55. Optimal spline solutions of systems of ordinary differential equations, in *Differential Equations, Proc. Sao Paulo 1981*, Lect. Notes 957, Springer-Verlag, 1982.
56. On spaces of piecewise polynomials with boundary conditions. I. Rectangles, with C. K. Chui, in *Multivariate Approximation II*, W. Schempp and K. Zeller (eds.), Birkhäuser Verlag, Basel, 1982, 69–80.
57. FORTRAN subroutines for computing smoothing and interpolating natural splines, with T. Lyche and K. Sepehrnoori, *Adv. Eng. Software* **5** (1983), 2–5.
58. On hyperbolic splines, *J. Approx. Theory* **38** (1983), 144–166.
59. Continuous selections and maximal alternators for spline approximation, with J. Blatter, *J. Approx. Theory* **38** (1983), 71–80.
60. On shape preserving quadratic spline interpolation, *SIAM J. Numer. Anal.* **20** (1983), 854–864.
61. On spaces of piecewise polynomials with boundary conditions II. Type–1 triangulations, with C. K. Chui and R. H. Wang, *Canad. Math. Soc. Conf. Proceedings* **3** (1983), 51–66.
62. On spaces of piecewise polynomials with boundary conditions. III. Type–2 triangulations, with C. K. Chui and R. H. Wang, *Canad. Math. Soc. Conf. Proceedings* **3** (1983), 67–80.
63. Interpolation by generalized splines, with G. Nürnberger, M. Sommer, and H. Strauss, *Numer. Math.* **42** (1983), 195–212.
64. Generalized Chebychevian splines, with G. Nürnberger, M. Sommer, and H. Strauss, *SIAM J. Numer. Anal.* **15** (1984), 790–804.
65. Bounds on the dimension of spaces of multivariate piecewise polynomials, *Rocky Mountain J. Math.* **14** (1984), 251–264.
66. On spaces of piecewise polynomials in two variables, in *Approximation Theory and Spline Functions*, S. Singh, J. Burry, and B. Watson (eds.), Reidel, Dordrecht, 1984, 151–197.
67. Splines and computer–aided design, *Delft Progress Rpt.* **9** (1984), 292–304.
68. Approximation by generalized spline functions, with G. Nürnberger, M. Sommer, and H. Strauss, *J. Math. Anal. Appl.* **108** (1985), 466–494.

69. Bivariate natural spline smoothing, with C. L. Hu, in *Delay Equations, Approximation and Applications*, G. Meinardus, and G. Nürnberger (eds.), Birkhäuser Verlag, Basel, 1985, 165–179.
70. Rates of convergence of control polygons, with E. Cohen, *Comput. Aided Geom. Design* **2** (1985), 229–235. (See also *Comput. Aided Geom. Design* **3** (1986), 77).
71. Algorithms for degree-raising of splines, with E. Cohen and T. Lyche, *Trans. on Graphics* **4** (1985), 171–181.
72. Degree raising for splines, with E. Cohen and T. Lyche, *J. Approx. Theory* **46** (1986), 170–181.
73. Efficient evaluation of multivariate polynomials, with W. Volk, *Comput. Aided Geom. Design* **3** (1986), 149–154.
74. Multivariate lacunary interpolation, with T. Fawzy, in *Approximation Theory V*, C. K. Chui, J. D. Ward, and L. L. Schumaker (eds.), Academic Press, N. Y., 1986, 339–342.
75. Complete spline smoothing, with C. L. Hu, *Numer. Math.* **49** (1986), 1–10.
76. A piecewise polynomial lacunary interpolation method, with T. Fawzy, *J. Approx. Theory* **48** (1986), 407–426.
77. Tensor products of abstract smoothing splines, with G. Baszenski, in *Alfred Haar Memorial Conference*, J. Szabados and K. Tandori (eds.), North Holland, Amsterdam, 1987, 181–192.
78. Numerical aspects of piecewise polynomials on triangulations, in *Algorithms for the Approximation of Functions and Data*, J. C. Mason and M. G. Cox (eds.), Clarendon Press, Oxford, 1987, 373–406.
79. The dimension of spline spaces of smoothness  $r$  for  $d \geq 4r + 1$ , with P. Alfeld, *Constr. Approx.* **3** (1987), 189–197.
80. Minimally supported bases for bivariate piecewise polynomials of smoothness  $r$  and degree  $d \geq 4r + 1$ , with P. Alfeld and B. Piper, *Comput. Aided Geom. Design* **4** (1987), 105–123.
81. Triangulation methods, in *Topics in Multivariate Approximation*, C. K. Chui, L. L. Schumaker, and F. Utreras (eds.), Academic Press, New York, 1987, 219–232.
82. A bibliography of multivariate approximation, with R. Franke, in *Topics in Multivariate Approximation*, C. K. Chui, L. L. Schumaker, and F. Utreras (eds.), Academic Press, New York, 1987, 275–335.
83. Spaces of bivariate splines on triangulations with holes, with P. Alfeld, *Approx. Theory Appl.* **3** (1987), 1–10.
84. An explicit basis for  $C^1$  quartic bivariate splines, with P. Alfeld, and B. Piper, *SIAM J. Numer. Anal.* **24** (1987), 891–911.
85. On a method for fitting an unknown function based on mean-value measurements, with G. Baszenski, *SIAM J. Numer. Anal.* **24** (1988), 725–736.
86. Asymptotic properties of complete smoothing splines and applications, with F. Utreras, *SIAM J. Scient. Computing* **9** (1988), 24–38.
87. Constructive aspects of spaces of bivariate piecewise polynomials, in *Mathematics of Finite Elements VI*, J. Whiteman (ed.), Academic Press, London, 1988, 513–520.
88. Dual bases for spline spaces on cells, *Comput. Aided Geom. Design* **5** (1988), 277–284.

89. Uniform approximation by generalized splines with free knots, with G. Nürnberger, M. Sommer, and H. Strauss, *J. Approx. Theory* **59** (1989), 150–169.
90. On super splines and finite elements, *SIAM J. Numer. Anal.* **26** (1989), 997–1005.
91.  $C^1$  surface fitting using data dependent triangulations, with E. Quak, in *Approximation Theory VI, Vol. 2*, C. Chui, L. Schumaker, and J. Ward (eds.), Academic Press, N. Y., 1989, 545–548.
92. Machine-aided investigation of multivariate spline spaces, with P. Alfeld and D. Eyre, in *Approximation Theory VI, Vol. 1*, C. Chui, L. Schumaker, and J. Ward (eds.), Academic Press, N. Y., 1989, 1–4.
93. Data fitting by penalized least squares, with M. von Golitschek, in *Algorithms for Approximation II*, J. Mason and M. G. Cox (eds.), Chapman and Hall, London, 1990, 210–227.
94. Calculation of the energy of a piecewise polynomial surface, with E. Quak, in *Algorithms for Approximation II*, J. Mason and M. G. Cox (eds.), Chapman and Hall, London, 1990, 134–143.
95. On generalized cross validation for tensor smoothing splines, with F. Utreras, *SIAM J. Scient. Computing* **11** (1990), 713–731.
96. On the dimension of bivariate spline spaces of smoothness  $r$  and degree  $d = 3r + 1$ , with P. Alfeld, *Numer. Math.* **57** (1990), 651–661.
97. Cubic spline fitting using data dependent triangulations, with E. Quak, *Comput. Aided Geom. Design* **7** (1990), 293–301.
98. Reconstruction of 3D objects from cross sections, in *Computation of Curves and Surfaces*, W. Dahmen, M. Gasca, and C. Micchelli (eds.), Kluwer, 1990, 275–309.
99. Reconstruction of 3D objects using splines, in *Curves and Surfaces in Computer Vision and Graphics*, L. Ferrari and R. de Figueiredo (eds.), Vol. 1251, SPIE, Bellingham, 1990, 130–140.
100. Super spline spaces of smoothness  $r$  and degree  $d \geq 3r + 2$ , with A. Kh. Ibrahim, *Constr. Approx.* **7** (1991), 401–423.
101. Recent progress on multivariate splines, in *Mathematics of Finite Elements VII*, J. Whiteman (ed.), Academic Press, London, 1991, 535–562.
102. Least squares fitting by linear splines on data dependent triangulations, with E. Quak, in *Curves and Surfaces*, P.-J. Laurent, A. LeMéhauté, and L. L. Schumaker (eds.), Academic Press, N. Y., 1991, 387–390.
103. Use of simulated annealing to construct triangular facet surfaces, with G. Baszenski, in *Curves and Surfaces*, P.-J. Laurent, A. LeMéhauté, and L. L. Schumaker (eds.), Academic Press, N. Y., 1991, 27–32.
104. Fitting scattered data on spherelike surfaces using tensor products of trigonometric and polynomial splines, with C. Traas, *Numer. Math.* **60** (1991), 133–144.
105. On dimension and existence of local bases for multivariate spline spaces, with P. Alfeld and M. Sirvent, *J. Approx. Theory* **70** (1992), 243–264.
106. On one-one bivariate transformations, with M. Fitzpatrick, *J. Approx. Theory* **72** (1993), 40–53.

107. The generic dimension of the space of  $C^1$  splines of degree  $d \geq 8$  on tetrahedral decompositions, with P. Alfeld and W. Whiteley, *SIAM J. Numer. Anal.* **30** (1993), 889–920.
108. Triangulations in CAGD, *IEEE Computer Graphics and Applications* **13** No. 1 (1993), 47–52.
109. Computing optimal triangulations using simulated annealing, *Comput. Aided Geom. Design* **10** (1993), 329–345.
110. L-spline wavelets, with Tom Lyche, in *Wavelets: Theory, Algorithms, and Applications*, C. Chui, L. Montefusco, and L. Puccio (eds.), Academic Press, New York, 1994, 197–212.
111. Applications of multivariate splines, *Proceedings of Symposia in Applied Mathematics*, Vol. 48, AMS, 1994, 177–203.
112. Circular Bernstein-Bézier polynomials, with P. Alfeld and M. Neamtu, in *Mathematical Methods for Curves and Surfaces*, M. Dæhlen, T. Lyche, and L. Schumaker (eds.), Vanderbilt University Press, Nashville, 1995, 11–20.
113. Control curves and knot insertion for trigonometric splines, with P. E. Koch, M. Neamtu, and T. Lyche, *Advances in Comp. Math.* **3** (1995), 405–424.
114. Minimal energy surfaces using parametric splines, with Greg Fasshauer, *Comput. Aided Geom. Design* **13** (1996), 45–79.
115. Total positivity properties of LB-splines, with Tom Lyche, in *Total Positivity and Its Applications*, M. Gasca and C. Micchelli (eds.), Kluwer, Dordrecht, 1996, 35–46.
116. Bernstein-Bézier polynomials on spheres and sphere-like surfaces, with P. Alfeld and M. Neamtu, *Comput. Aided Geom. Design* **13** (1996), 333–349.
117. Multivariate scattered data fitting, with Alain Le Méhauté and Leonardo Traversoni, *J. Comput. Appl. Math.* **73** (1996), 1–4.
118. Fitting scattered data on sphere-like surfaces using spherical splines, with P. Alfeld and M. Neamtu, *J. Comput. Appl. Math.* **73** (1996), 5–43.
119. Hybrid Bézier patches on sphere-like surfaces, with Xiaoyu Liu, *J. Comput. Appl. Math.* **73** (1996), 157–172.
120. Dimension and local bases of homogeneous spline spaces, with P. Alfeld and M. Neamtu, *SIAM J. Math. Anal.* **27** (1996), 1482–1501.
121. Shape preserving knot removal, with S. Stanley, *Comput. Aided Geom. Design* **13** (1996), 851–872.
122. Scattered data interpolation using  $C^2$  supersplines of degree six, with M.-J. Lai, *SIAM J. Numer. Anal.* **34** (1997), 905–921.
123. Fitting monotone surfaces to scattered data using  $C^1$  piecewise cubics, with Lu Han, *SIAM J. Numer. Anal.* **34** (1997), 569–585.
124. Scattered data fitting on the sphere, with G. Fasshauer, in *Mathematical Methods for Curves and Surfaces II*, M. Dæhlen, T. Lyche, and L. L. Schumaker (eds.), Vanderbilt University Press, Nashville, 1998, 117–166.
125. Designing NURBS cam profiles using trigonometric splines, with H. Pottmann and M. Neamtu, *ASME J. Mech. Design.* **120** (1998), 175–180.
126. Quasi-interpolants based on trigonometric splines, with Tom Lyche and Sonya Stanley, *J. Approx. Theory* **95** (1998), 280–309.

127. On the approximation power of bivariate splines, with M.-J. Lai, *Advances in Comp. Math.* **9** (1998), 251–279.
128. On the approximation power of splines on triangulated quadrangulations, with M.-J. Lai, *SIAM J. Numer. Anal.* **36** (1999), 143–159.
129. Dual focal splines and rational curves with rational offsets, with H. Pottmann and M. Neamtu, *Math. Eng. Ind.* **7** (1999), 139–154.
130. Non-existence of star-supported spline bases, with P. Alfeld, *SIAM J. Math. Anal.* **31** (2000), 1482–1501.
131. Stable local nodal bases for  $C^1$  bivariate polynomial splines, with Oleg Davydov, in *Curve and Surface Design: Saint-Malo 99*, P.-J. Laurent, P. Sablonnière, and L. L. Schumaker (eds.), Vanderbilt University Press, Nashville, 2000, 171–180.
132. A multiresolution tensor spline method for fitting functions on the sphere, with T. Lyche, *SIAM J. Scient. Computing* **22** (2000), 724–746.
133. Locally linearly independent bases for bivariate polynomial spline spaces, with Oleg Davydov, *Advances in Comp. Math.* **13** (2000), 355–373.
134. Macro-elements and stable local bases for spaces of splines on Clough-Tocher triangulations, with M.-J. Lai, *Numer. Math.* **88** (2001), 105–119.
135. Local Lagrange interpolation by bivariate  $C^1$  cubic splines, with G. Nürnberger and F. Zeilfelder, *Mathematical Methods for Curves and Surfaces III, Oslo, 2000*, T. Lyche and L. L. Schumaker (eds.), Vanderbilt University Press, 2001, 393–404.
136. On stable local bases for bivariate polynomial spline spaces, with Oleg Davydov, *Constr. Approx.* **18** (2001), 87–116.
137. Bounds on projections onto bivariate polynomial spline spaces with stable bases, with Manfred von Golitschek, *Constr. Approx.* **18** (2002), 241–254.
138. Smooth macro-elements based on Clough-Tocher triangle splits, with P. Alfeld, *Numer. Math.* **90** (2002), 597–616.
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140. Stable approximation and interpolation with  $C^1$  quartic bivariate splines, with Oleg Davydov, *SIAM J. Numer. Anal.* **39** (2002), 1732–1748.
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