## List of Publications of Thomas F. Banchoff

- [1] <u>Tightly Embedded 2-dimensional Polyhedral Manifolds</u>, Amer. J. Math., 87 (1965), 462-472.
- [2] <u>Critical Points and Curvature for Embedded Polyhedra</u>, J. Differential Geometry, 1 (1967), 257-268.
- [3] <u>Total Central Curvature of Curves</u>, Duke Math. J., 37 (1970), 281-289.
- [4] <u>Periodic Points of Anosov Diffeomorphisms</u> (with Michael I. Rosen), Proceedings of Symposia in Pure Mathematics, Vol. XIV, Global Analysis, Vol. XIV (1970), 17-21.
- [5] <u>The Spherical Two piece Property and Tight Surfaces in Spheres</u>, J. Differential Geometry, 4 (1970), 193-205.
- [6] <u>Critical Points and Curvature for Embedded Polyhedral Surfaces</u>, Amer. Math. Monthly, 77 (1970), 475-485.
- [7] <u>Non-rigidity Theorems for Tight Polyhedral Tori</u>, Archiv der Mathematik, 21 (1970), 416-423.
- [8] The Two-piece Property and Tight n-manifolds-with-boundary in  $E^n$ , Trans. Amer. Math. Soc. 161 (1971), 259-267.

[9] <u>On a Generalization of the Isoperimetric Inequality</u> (with William Pohl), J. Differential Geometry, 6 (1971), 175-192.

[10] <u>High Codimensional 0-tight Mappings on Spheres</u>, Proc. Amer. Math. Soc., 29 (1971), 133-137.

[11] <u>Applications of Elementary Calculus</u>, Eight lectures in an NSF Sponsored Conference for College Teachers of Mathematics, Summer 1971, published in the Proceedings of the Conference, Reprinted by the MAA.

[12] <u>Polyhedral Catastrophe I: Maps of the Line to the Line</u>, Dynamical Systems, Academic Press (1973), 7-22.

- [13] <u>Global Geometry of Polygons I: The Theorem of Fabricius-Bjerre</u>, Proc. A.M.S. 45 (1974), 237-241.
- [14] <u>Foliations of Knot Complements in the Bicylinder Boundary</u>, Separata do boletim da Sociedade Brasileira de Matematica, **Vol. 5**, **No. 1** (1974), 31-43.

- [15] <u>Real Time Computer Graphics Techniques in Geometry</u> (with Charles Strauss), Proceedings of Symposia in Applied Mathematics Vol. 20, The Influence of Computing on Mathematical Research and Education, Amer. Math. Soc. (1974), 105-111.
- [16] <u>Triple Points and Surgery for Immersed Surfaces</u>, Proc. A.M.S. 46 (1974), 407-413.
- [17] <u>Triple Points and Singularities of Projections for Immersed Surfaces</u>, Proc. A.M.S. 46 (1974), 402-407.
- [18] <u>Tight Polyhedral Klein Bottles, Projective Planes, and Möbius Bands</u>, Math. Ann.
   207 (1974), 233-243.
- [19] <u>Stiefel-Whitney Homology Classes and Singularities of Projections for Polyhedral</u> <u>Manifolds</u>, Amer. Math. Soc. Proc. Sympos. Pure Math., Vol. XXVII, Stanford University 1973, Part I (1975), 333-347.
- [20] <u>The Behavior of the Total Twist and Self-Linking Number of a Closed Space Curve</u> <u>under Inversions</u> (with James E. White), Mathematica Scandinavica 36 (1975), 254-262.

[21] <u>Height functions with three critical points</u> (with Floris Takens), Illinois J. Mathematics, 76 (1975), 325-335.

- [22] <u>Minimal submanifolds of the Bicylinder Boundary</u>, Boletim da Sociedade Brasileira de Matematica 7 (1976), 37-57.
- [23] <u>Self-Linking Numbers of Space Polygons</u>, Indiana University Mathematics Journal
   (1076) 1171 1100

(1976), 1171-1188.

[24] <u>Immersions and Mod 2 Quadratic Forms</u> (with Lou Kauffman), American

Mathematical

Monthly 84 (1977), 168-185. (Awarded Lester Ford Award for exposition, Summer 1978).

- [25] <u>Whitney Duality and Singularities of Projections</u> (with Clint McCrory), Proceedings of
   Escuela Latino-americana de Mathematica, Rio de Janeiro, Springer-Verlag Lecture Notes in Mathematics 5997 (1977), 68-81.
- [26] <u>Computer Animation and the Geometry of Surfaces in 3- and 4-Space</u>, Proceedings of the International Congress of Mathematicians, Helsinki (1978), (Invited 45 minute address), 1005-1013.

- [27] <u>Real-Time Computer Graphics Analysis of Figures in Four-Space</u> (with Charles Strauss), American Association of the Advancement of Science Selected Symposium
- 24 (1978), Westview Press, Colo., pp. 159-168.
- [28] <u>A Combinatorial Formula for Normal Whitney Classes</u> (with Clint McCrory), Proceedings of the A.M.S. 76 (1979), 171-177.
- [29] Selected Papers in Geometry (Edited by Ann Stehney, Tilla Milnor, Joseph D'Atri
- and Thomas Banchoff), Mathematical Association of America (1979).
- [30] <u>Sur les points paraboliques des surfaces: erratum et complements</u> (with Rene Thom), C. R. Acad. Sc. Paris, t. 291 (27 Octobre 1980), 503-505.
- [31] <u>Every Sphere Eversion has a Quadruple Point</u> (with Nelson Max), Am. J. Math., Supplementary Issue (1981), 191-209.
- [32] <u>Cusps of Gauss Mappings</u> (with T. Gaffney and C. McCrory), Pitman Advanced Publishing Program, 55 (1982), London, pp. 1-88.

[33] <u>Double Tangency Theorems for Pairs of Submanifolds</u>, Geometry Symposium Utrecht

(1980), Springer-Verlag Lecture Notes 894, pp. 26-48.

[34] <u>Geometrical Class and Degree for Surfaces in Three-Space</u> (N. Kuiper), J. Diff. Geom. 16 (1981), 559-576.

[35] Frenet Frames and Theorems of Jacobi and Milnor for Space Polygons, Jugoslavenska

Akad. Znanosti I Umjetnosti 396 (1982), 101-108.

- [36] <u>Circular and Countercircular Images of Plane Curves</u> (with E. Beckenbach), General Inequalities 3 (1983), ISNM64, Birkhäuser-Verlag, 321-337.
- [37] <u>The Nine-Vertex Complex Projective Plane</u> (with W. Kühnel), Mathematical Intelligencer 5 (1983), 11-22.
- [38] <u>Linear Algebra Through Geometry</u> (with J. Wermer), Springer-Verlag (1983).
- [39] <u>DIAL: A Diagrammatic Animation Language</u> (with S. Feiner and D. Salesin), IEEE Computer Graphics and Applications, Vol. 2, No. 7 (1982), 43-54.
- [40] <u>Computer Graphics in Geometric Research</u>, Recent Trends in Mathematics, Teubner-Texte 50 (1983), 316-327.
- [41] <u>Critical points and curvature for embedded polyhedra II</u>, Differential Geometry, Proc. Special Year, Maryland, Progress in Math 32, Birkhäuser (1983), 34-55.

- [42] <u>Normal Curvatures and Euler Classes for Polyhedral Surfaces in 4-Space</u>, Proc. A.M.S.,92 (1984), 593-596.
- [43] <u>Differential Geometry and Computer Graphics</u>, Perspective in Mathematics, Anniversary of Oberwolfach (1984) Birkhäuser-Verlag, Basel, pp. 43-60.
- [44] <u>Counting Tritangent Planes of Space Curves</u> (with T. Gaffney and C. McCrory), Topology 34 (1985), 15-24.
- [45] <u>Visualizing Two-Dimensional Phenomena in Four-Dimensional Space</u>, Statistical Image Processing, Marcel Dekker (1986), 187-202.
- [46] <u>Topology and Mechanics with Computer Graphics: Linear Hamiltonian Systems in</u> <u>Four Dimensions</u> (with H. Koçak, F. Bisshopp and D. Laidlaw), Advances in Applied Mathematics (1986), 282-308.
- [47] Computer Graphics and Differential Geometry: Because the Light is Better over
- Here. The Merging of Disciplines: New Directions in Pure, Applied, and Combinatorial Mathematics, Springer-Verlag(1986), 1-11.
- [48] <u>EDGE: The Educational Differential Geometry Environment</u> (with Richard Schwartz), ECM/87 Educational Computing in Mathematics (1987), North-Holland, 11-29.
- [49] <u>Global Theorems for Symmetry Sets of Smooth Curves and Polygons in the Plane</u> (with Peter Giblin) Proc. Royal Soc. Edinburgh 106A (1987), 221-231.
- [50] <u>Torus Decompositions of Regular Polytopes in 4-Space</u>. Shaping Space (1988), Birkhäuser-Verlag, 221-230.
- [51] From Flatland to Hypergraphics: Interacting with Higher Dimensions Interdisciplinary Science Reviews, vol. 15, No. 4 (1990), 364-372.
- [52] <u>Beyond the Third Dimension</u>, (1990) New York: W. H.Freeman & Co,. Scientific American Library, 1-210.
- [53] <u>Student Generated Interactive Software for Calculus of Surfaces in a Workstation</u> <u>Laboratory</u>, (with student associates) UME Trends, Vol. 1, No. 3, (1990), 7-8.
- [54] <u>Geometry of the Hopf Mapping and Pinkall's Tori of Given Conformal Type</u> Computers in Geometry, Marcel Dekker, New York (1990), 57-62.
- [55] <u>Computer Graphics Tools for Rendering Algebraic Surfaces and the Geometry of</u> <u>Order</u>, Geometric Analysis and Computer Graphics, Springer-Verlag, New York (1991), 31-37.

- [56] <u>Student-Generated Software for Differential Geometry (with Jeff Achter, Rashid Ahmad, Cassidy Curtis, Curtis Hendrickson, Greg Siegle and Matthew Stone) MAA Notes Vol. 19 (1991), 165-172.</u>
- [57] <u>Computer Laboratory Magnification of Idiosyncrasies</u> MAA Notes Vol.20 (1991), 1-8.
- [58] <u>Investigating Volumes: The Air France Cup</u> Geometry's Future, COMAP (1991), 87-93.
- [59] <u>Dimensions</u> On the Shoulders of Giants, National Academy of Sciences Press (1991), 11-59.
- [60] <u>Flatland: A New Introduction</u> Princeton Science Series, Princeton University Press (1991), xv-xxxi.
- [61] <u>Linear Algebra Through Geometry</u> (with J. Wermer), revised and expanded second edition, Springer-Verlag (1991).
- [62] <u>Equilibrium Triangulations of the Complex Projective Plane</u> (with Wolfgang Kühnel) Geometriae Dedicata 44

(1992), 313-333.

- [63] <u>Illustrating Beyond the Third Dimension</u>, (with Davide Cervone) Leonardo, special issue on mathematics and computer graphics, 25, No. 3/4 (1992) 273-280.
- [64] <u>With Coxeter at the International Congress on Mathematics Education 7</u> Focus 12, No. 5 (1992),4,16.

 [65]
 Euler Numbers, Complex Points and Singularities of Projections for Oriented

 Surfaces
 in Four-Space

 Fearrie
 Pagific Journal of Mathematics 161

 No.1 (1003)
 No.1 (1003)

- Farris), Pacific Journal of Mathematics 161, No.1 (1993), 1-24.
- [66] <u>Symmetry Sets of Piecewise Circular Curves (with Peter Giblin)</u> Proc. Royal Soc. Edinburgh 123A (1993), 1-15.
- [67] <u>ODE on a Grecian Urn</u> (Cover) The American Mathematical Monthly Vol 100, No. 9 (1993).
- [68] Interactive Computer Graphics, Higher Dimensional Geometry and Electronic Publication: From Flatland to Hypertext The Serials Librarian\_Vol. 24, No. 3-4
- (1994) 9-15, and in New Scholarship: New Serials: Proceedings of the North American Serials Interest Group, (1994) The Haworth Press, p. 9-15.

- [69] <u>On the Geometry of Piecewise Circular Curves (with Peter Giblin) The American</u> Mathematical Monthly Vol 101, No 5 (1994) 403-416.
- [70] <u>Secrets of My Success: (the Prize Session Presentation for the MAA Haimo Award</u> for Distinguished College or University Teaching), Focus September 1996.
- [71] <u>Beyond the Third Dimension</u>, Second Edition, revised (1996) New York: W. H.Freeman & Co., Scientific American Library, 1-210.
- [72] <u>The Best Homework Ever?</u> in the Brown Alumni Monthly, Volume 97, Number4, December 1996
- [73] <u>Tight Submanifolds, Smooth and Polyhedral</u> (with Wolfgang Kühnel) Eds. S. S.Chern and T. Cecil, Cambridge University Press (1997) 51-118..
- [74] <u>Remembering Nicolaas Kuiper</u>, dedication essay in "Tight and Taut Submanifolds" Eds. S.-S.Chern and T. Cecil, Cambridge University Press (1997) xiii-xv.
- [75] <u>Geometry in Curvature Theory</u>, posthumous article by Nicolaas Kuiper, completed in collaboration with Thomas Cecil in "Tight and Taut Submanifolds" Eds. S.-S.Chern and T. Cecil, Cambridge University Press (1997), 1-50.
- [76] <u>Interview with Fr. Magnus Wenninger, O.S.B.</u> Symmetry, Culture and Science Vol. 13, no.1-2 (1997), 63-70.
- [77] <u>Normal Euler Class and Singularities of Projections for Polyhedral Surfaces</u> <u>in Four-Space</u> (with Ockle Johnson) Topology, 37, No. 2 (1998) 419-439.
- [78] <u>An Interactive Gallery on the Internet: Surfaces Beyond the Third Dimension</u> (with Davide Cervone) International Journal of Shape Modeling", Vol. 5, No. 1 (June 1999)
- [79]] <u>Children as Mathematicians and Mathematicians as Children</u>, Teaching Children Mathematics, National Council of Teachers of Mathematics, February (2000).
- [80] Osculating Tubes and Self-Linking Numbers of Curves on the Three-Sphere Accepted for publication in the refereed proceedings of the Alfred Gray Memorial Conference, Bilbao, Spain 2000. <u>Contemporary Math</u> Amer. Math. Soc., vol. 288 (2001) 10-19.
- [81] <u>Mathematics in 2010: What Should a Graduate Know?</u>, CUPM discussion papers about Mathematics and the Mathematical Sciences 2010: What should students know? <u>MAA Reports</u> (2001) 13-20.

- [82] <u>Virtual Reconstruction of a Virtual Exhibit</u> (with Davide Cervone) <u>Multimedia</u> <u>Tools for Communicating Mathematics</u>, Springer-Verlag, Berlin, Heidelberg, (2002) 29-38.
- 83] Bridging the Divide: Research vs. Practice in Contemporary Mathematics Teaching and Learning (with Anita Salem), Disciplinary Styles in the Scholarship of Teaching and Learning-Exploring Common Ground, Carnegie Foundation, (2002), 181-196
- [84] <u>Computer Graphics in Mathematical Research, From ICM 1978 to ICM 2002: A</u> <u>Personal Reflection</u>, Proceedings of International Congress on Mathematical Software, Beijing (2002) Springer-Verlag, Belin-Heidelberg, 180-189.
- [85] <u>The Power of Liberal Arts in the Mathematics Curriculum</u>, Boston University. Journal of Education, vol. 183, n. 3.(2002), 17-23.
- [86] <u>Review of "Visualiser la quatrieme dimension" by Francois lo Jacomo, The</u> <u>Mathematical Intelligencer</u> Vol. 25, No.3 (2003), 57-59.
- [87] In Memoriam Arnold Ross, Notices of the AMS. Vol. 50, No. 6 (2003), 661.
- [88] <u>Edwin Abbott Abbott</u> The Dictionary of Nineteenth Century British Scientists, Thoemmes Press, (2004),1-2.
- [89] <u>Math Awareness Month 2000: an Interactive Experience</u> (with Davide Cervone) Mathematics and Culture II Visual Perfection: Mathematics and Creativity, ed. Michele Emmer, Springer-Verlag, 2005, 83–97
- [90] In Memoriam Prof. Shiing-Shen Chern MAA Focus, Vol. 25, No. 1(2005),14.
- [91] Interactive Geometry and Multivariable Calculus on the Internet ,Proceedings of the KAIST International Symposium on Enhancing Undergraduate Teaching of Mathematics, Daejon, Korea, (2005), 11-31. Reprinted with enhanced graphics in <u>Enhancing University Mathematics</u> CBMS Issues in Mathematics Education, vol. 14, AMS (2007), 17-32.
- [92] Introduction to <u>The Fourth Dimension Simply Explained</u> by Henry Parker Manning, Dover Publications, (2005), i-xii.
- [93] <u>Complementary Coffee Cups</u>, The College Mathematics Journal, Vol. 37, No.3, (2006),170-175.
- [94] <u>Complementary Coffee Cups, Nieuwe Wiskrant Vol. 26, No. 1,(2006) 27-30</u> (Dutch translation of [92]).

[95] <u>Polyhedral Models for Cartan's Isoparametric Hypersurface and PL Taut</u> <u>Submanifolds.</u> with Wolfgang Kuehnel, Preprint 2006/004 The University of Stuttgart (2006), 1-16.

[96] <u>Salvador Dali, the Fourth Dimension, and Martin Gardner.</u> The G4G7 Gathering for Gardner Exchange Book I (2007): 19-24

[97] <u>Communicating Mathematics to All Audiences in the Digital Era</u> for the (refereed) proceedings of the conference "Communicating Mathematics in the Digital Era" at Aviero, Portugal, (2008) A. K. Peters and Company, 215-224.

[98] <u>Algebraic Thinking and Geometric Thinking</u>, Algebra and Algebraic Thinking in School Mathematics (2008) NCTM, Reston VA, 99-112

- [97] <u>Review of "Shadows of Reality" by Tony Robbin</u>, The Mathematical Intelligencer 2008).
- [98] <u>Algebraic Thinking and Geometric Thinking</u> NCTM Seventieth Yearbook "Algebra and Algebraic Thinking in School Mathematics" 2008, p. 99-112

[99] <u>Flatland: the Movie Edition</u>, Introduction, Princeton University Press, (2008), ix-xv.

[100] <u>Interactive Geometry and Critical Points</u>, Electronic Journal of Mathematics and Technology, Volume 2, June (2009)

[101] Review of "Arthur Cayley: Mathematician Laureate of the Victorian Age" and "James Joseph Sylvester: Jewish Mathematician in a Victorian World", Victorian Studies, Volume 51, Number 2, Winter (2009) 380-382

[102] <u>Internet-Based Teaching and Learning in a Mid-Size Honors Multivariable</u> <u>Calculus Course</u>, Electronic Journal of Mathematics and Technology, Volume 3, June (2009)

[103] <u>Flatland, a Version with Notes and Commentary</u>, with William Lindgren, Cambridge University Press and MAA (2009) i-ix and 1-294. [104] <u>Algebra and Geometry from Two to Three Dimensions</u> Future Curricular Trends in School Algebra and Geometry, Center for the Study of the Mathematics Curriculum (2010) 169-181.

[105] <u>Maximum Volume Space Quadrilaterals</u>, with Nick Haber and Aaron Mazel-Gee, Expeditions in Mathematics, MAA (2011) 175-198.

[106] <u>Differential Geometry of Curves and Surfaces</u> with Steven Lovett, A.K.Peters and Co. (now with Taylor & Francis) (2011) p. 1-331.