Scott Schaefer

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Research Interests

- Computer Graphics: curves & surfaces, mesh processing, deformation, surface reconstruction
- Scientific Visualization: implicit modeling, volume rendering, real-time visualization

Education

- B.S. Computer Science and Mathematics, Trinity University 2000
- M.S. Computer Science, Rice University 2003
  Thesis: Interpolatory Subdivision for Surfaces of Revolution
  Advisor: Joe Warren
- Ph.D. Computer Science, Rice University 2006
  Dissertation: Intuitive Methods for 3D Shape Deformation
  Advisor: Joe Warren

Work Experience

- Associate Department Head of Computer Science & Engineering, 9/2017-present
- Full Professor, Texas A&M University 9/2016-present
- Associate Professor, Texas A&M University 9/2012-8/2016
- Assistant Professor, Texas A&M University 8/2006-8/2012
- Visiting Researcher, Microsoft Research 8/2006

Research Grants

- "Generalized Barycentric Coordinates," *National Science Foundation*, PI: Scott Schaefer, 6/1/2007-5/31/2010, $300,000.
- "Terrain and Surface Reconstruction Using Wavelets," *DARPA*, PI: Scott Schaefer, 2/1/2008-1/31/2009, $91,759.
- "Surface Reconstruction from Point Clouds Using Wavelets," *DARPA*, PI: Scott Schaefer, Co-PI: Guergana Petrova, 5/1/2009-4/30/2011, $499,747.
- "Fast Point Cloud Surface Reconstruction Algorithms," *National Science Foundation*, PI: Ron Devore, Co-PI: Scott Schaefer, Guergana Petrova, 9/1/2009-8/31/2012, $707,891.
- "CAREER: Parameterization and Tessellation for Computer Graphics," *National Science Foundation*, PI: Scott Schaefer, 6/1/2012-5/31/2017, $472,995.
- "TOP Proposal for Math Learning Tools", *Texas A&M University*, PI: Andre Thomas, Co-PI: Susan Pedersen, Paulo Lima-Filho, Scott Schaefer, 9/1/2014-8/31/2015, $100,000.
- "Automated Parametric Discretization Tool for High Fidelity Hypersonic Design Analysis", AFOSR SBIR Phase I, PI: HyPerComp Inc., subcontract: Scott Schaefer, 3/27/2018-1/2/2019, $150,000.

Awards

- Participant of the 2008 DARPA Computer Science Study Panel
- 2010 Computer Science & Engineering Undergraduate Faculty Teaching Excellence Award
- 2011 Computer Science & Engineering Undergraduate Faculty Teaching Excellence Award
- Best Paper Award (The Günter Enderle Award), Eurographics 2011 for "Wavelet Rasterization"
- NSF CAREER Award
- 2015 Herbert H. Richardson Faculty Fellow
- 2017 Association of Former Students Distinguished Achievement Award in Teaching – College Level
- Third Best Paper Award, SGP 2017 for "Isometry-Aware Preconditioning for Mesh Parameterization"
- 2017 Computer Science & Engineering Undergraduate Faculty Teaching Excellence Award
- 2018-2019 SEC Academic Leadership Fellow
- 2018-2019 TEES Research Impact Award

Refereed Journal Publications

(All papers can be found at http://faculty.cs.tamu.edu/schaefer/research/)

1. A Subdivision Scheme for Hexahedral Meshes. Bajaj C., Schaefer S., Warren J., Xu G. *The Visual Computer*, Vol. 18, pp. 409-420, (2002).
2. Dual Contouring of Hermite Data. Ju T., Losasso F., Schaefer S., Warren J. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 19% acceptance), Vol. 21, No. 3, pp. 339-346, (2002).
3. Convex Contouring of Volumetric Data. Ju T., Schaefer S., Warren J. *The Visual Computer*, Vol. 19, pp. 513-525, (2003).
4. Recursive Turtle Programs and Iterated Affine Transformations. Ju T., Schaefer S., Goldman R. *Computers and Graphics*, Vol. 28, No. 6, pp. 991-1004, (2004).
5. Turtle Geometry in Computer Graphics and Computer-Aided Design. Goldman R., Schaefer S., Ju T. *Computer-Aided Design*, Vol. 36, No. 14, pp. 1471-1482, (2004).
6. Teaching Computer Game Design and Construction. Schaefer S., Warren J. *Computer-Aided Design*, Vol. 36, No. 14, pp. 1501-1510, (2004).
7. A Factored Approach to Subdivision Surfaces. Warren J., Schaefer S. *Computer Graphics & Applications*, Vol. 24, No. 3, pp. 74-81, (2004).
8. On C^2 Triangle/Quad Subdivision. Schaefer S., Warren J. *ACM Transactions on Graphics* Vol. 24, No. 1, pp. 28-36 (2005).
9. Dual Marching Cubes: Primal Contouring of Dual Grids. Schaefer S., Warren J. *Computer Graphics Forum*, Vol. 24, No. 2, pp. 195-201 (2005).
10. Mean Value Coordinates for Closed Triangular Meshes. Ju T., Schaefer S., Warren J. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 21% acceptance), Vol. 24, No. 3, pp. 561-566 (2005).
11. Image Deformation using Moving Least Squares. Schaefer S., McPhail T., Warren J. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 18% acceptance), Vol. 25, No. 3, pp. 533-540 (2006).
12. Barycentric Coordinates for Convex Sets. Warren J., Schaefer S., Hirani A., Desbrun M. *Advances in Computational and Applied Mathematics*, Vol. 27, No. 3, pp. 319-338 (2007).

13. A Unified, Integral Construction for Coordinates over Closed Curves. Schaefer, S., Ju T., Warren J. *Computer-Aided Geometric Design*, Vol. 24, No. 8-9, pp. 481-493 (2007).
14. Manifold Dual Contouring. Schaefer S., Ju T., Warren J. *Transactions on Visualization and Computer Graphics*, Vol. 13, No. 3, pp.610-619 (2007).
15. Approximating Catmull-Clark Subdivision Surfaces with Bicubic Patches. Loop, C. and Schaefer S. *ACM Transactions on Graphics*, Vol. 27, No. 1, pp. 8:1-8:11 (2008).
16. Nonlinear Subdivision Through Nonlinear Averaging. Schaefer S., Vouga E., Goldman R., *Computer Aided Geometric Design*, Vol. 25, No. 3, pp. 162-180 (2008).
17. Streaming Surface Reconstruction Using Wavelets. Manson J., Petrova G., Schaefer S. *Computer Graphics Forum* (Proceedings of the Symposium on Geometry Processing, 24% acceptance), Vol. 27, No. 5, pp. 1411-1420 (2008).
18. G^2 Tensor Product Splines over Extraordinary Vertices. Loop, C., Schaefer S. *Computer Graphics Forum* (Proceedings of the Symposium on Geometry Processing, 24% acceptance), Vol. 27, No. 5, pp. 1373-1382 (2008).
19. Exact Evaluation of Limits and Tangents for Non-Polynomial Subdivision Schemes. Schaefer S., Warren J. *Computer Aided Geometric Design*, Vol. 25, No. 8, pp. 607-620 (2008).
20. On the Smoothness of Real-Valued Functions Generated by Subdivision Schemes using Nonlinear Binary Averaging. Vouga E., Schaefer S., Goldman R. *Computer Aided Geometric Design*, Vol. 26, No. 2, pp. 231-242 (2009).
21. Non-uniform Subdivision for B-splines of Arbitrary Degree. Schaefer S., Goldman R. *Computer Aided Geometric Design*, Vol. 26, No. 1, pp. 75-81 (2009).
22. J-Splines. Rossignac J., Schaefer S. *Computer-Aided Design*, Vol. 40, No. 10-11, pp. 1024-1032 (2009).
23. Simplification of Articulated Meshes. Landreneau E., Schaefer S. *Computer Graphics Forum* (Proceedings of Eurographics, 23% acceptance), Vol. 28, No. 2, pp. 347-353 (2009).
24. Approximating Subdivision Surfaces with Gregory Patches for Hardware Tessellation. Loop C., Schaefer S., Ni T., and Castano I. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH ASIA, 25% acceptance), Vol. 28, No. 5, pp. 151:1-9 (2009).
25. Hair Meshes. Yuksel C., Schaefer S. and Keyser J. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH ASIA, 25% acceptance), Vol. 28, No. 5, pp. 166:1-7 (2009).
26. Isosurfaces Over Decompositions of Multiresolution Grids. Manson J. and Schaefer S. Computer Graphics Forum (Proceedings of Eurographics, 20% acceptance), Vol. 29, No. 2, pp. 377-385 (2010).
27. Parameterizing Subdivision Surfaces. He L., Hormann K., Schaefer S. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 26% acceptance), Vol.29, No. 4, pp. 120:1-6 (2010).
28. Triangle Surfaces with Discrete Equivalence Classes. Singh M. and Schaefer S. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 26% acceptance), Vol.29, No. 4, pp. 46:1-7 (2010).
29. Moving Least Squares Coordinates. Manson J. and Schaefer S. *Computer Graphics Forum* (Proceedings of the Symposium on Geometry Processing, 34% acceptance), Vol. 29, No. 5, pp. 1517-1524 (2010).
30. Scales and Scale-Like Structures. Landreneau E. and Schaefer S. *Computer Graphics Forum* (Proceedings of the Symposium on Geometry Processing, 34% acceptance), Vol. 29, No. 5, pp. 1653-1660 (2010).
31. Poisson-based Weight Reduction of Animated Meshes. Landreneau E. and Schaefer S. *Computer Graphics Forum*, Vol. 29, No. 6, pp. 1945-1954 (2010).

32. Contouring Discrete Indicator Functions. Manson J., Smith J., Schaefer S. *Computer Graphics Forum* (Proceedings of Eurographics, 17% acceptance), Vol. 30, No. 2, pp. 385-393 (2011).
33. Wavelet Rasterization. Manson J., Schaefer S. *Computer Graphics Forum* (Proceedings of Eurographics, 17% acceptance), Vol. 30, No. 2, pp. 395-404 (2011).
34. Parameterization and Applications of Catmull-Rom Curves. Yuksel C., Schaefer S., Keyser J. *Computer-Aided Design*, Vol. 43, No. 7, pp. 747-755 (2011).
35. Positive Gordon-Wixom Coordinates. Manson J., Li K. and Schaefer S. *Computer Aided Design* (Proceedings of SIAM Conference on Geometric and Physical Modeling, 29% acceptance), Vol. 43, No. 11, pp. 1422-1426 (2011).
36. Hierarchical Deformation of Locally Rigid Meshes. Manson J. and Schaefer S. *Computer Graphics Forum*, Vol. 30, No. 8, pp. 2387-2396 (2011).
37. Encoding Normal Vectors Using Optimized Spherical Coordinates. Smith J., Petrova G., Schaefer S. *Computers & Graphics* (Proceedings of Shape Modeling International, 34% acceptance), Vol. 36, No. 5, pp. 360-365 (2012).
38. Progressive Encoding and Compression of Surfaces Generated from Point Cloud Data. Smith J., Petrova G., Schaefer S. *Computers & Graphics* (Proceedings of Shape Modeling International, 34% acceptance), Vol. 36, No. 5, pp. 341-348 (2012).
39. Parameterization-Aware MIP-Mapping. Manson J. and Schaefer S. *Computer Graphics Forum* (Proceedings of the Eurographics Symposium on Rendering, 30% acceptance), Vol. 31, No. 4, pp. 1455-1463 (2012).
40. Microstructure Based Models for Multi-Functional Material Systems. Sarzynski M., Schaefer S., Ochoa O. *Mechanics of Advanced Materials and Structures*, Vol. 19, No. 6, pp. 421-430 (2012).
41. Improving the Parameterization of Approximate Subdivision Surfaces. He L., Loop C. and Schaefer S. *Computer Graphics Forum* (Proceedings of Pacific Graphics, 20% acceptance), Vol.31, No. 7, pp. 2127-2134 (2012).
42. Analytic Rasterization of Curves with Polynomial Filters. Manson J. and Schaefer S. *Computer Graphics Forum (*Proceedings of Eurographics, 25% acceptance), Vol. 32, No. 2, pp. 499-507 (2013).
43. Mesh Denoising via L0 Minimization. Lei H. and Schaefer S. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 24% acceptance), Vol. 32, No. 4, pp. 64:1-8 (2013).
44. Cardinality-Constrained Texture Filtering. Manson J. and Schaefer S. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 24% acceptance), Vol. 32, No. 4, pp. 140:1-8 (2013).
45. Bilinear Accelerated Filter Approximation. Manson J. and Schaefer S. *Computer Graphics Forum* (Proceedings of the Eurographics Symposium on Rendering, 36% acceptance), Vol. 33, No. 4, pp. 33-40 (2014).
46. Selective Degree Elevation for Multi-Sided Bezier Patches. Smith J. and Schaefer S. *Computer Graphics Forum* (Proceedings of Eurographics, 27% acceptance), Vol. 34, No. 2 (2015), pp. 609-615.
47. Denoising Point Sets via L0 Minimization. Sun Y, Schaefer S., and Wang W. *Computer Aided Geometric Design* (Proceedings of Geometric Modeling and Processing, 24% acceptance), Vol. 35 (2015), pp. 2-15.
48. Bijective Parameterization with Free Boundaries. Smith J. and Schaefer S. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 25% acceptance), Vol. 34, No. 4 (2015), pp. 70:1-70:9.
49. Pyramid Algorithms for Barycentric Rational Interpolation. Hormann K. and Schaefer S. *Computer Aided Geometric Design*, Vol. 42 (2016), pp. 1-6.

50. Robust Mesh Denoising via Vertex Pre-filtering and L1-Median Normal Filtering. Lu X., Chen W., and Schaefer S. *Computer Aided Geometric Design*, Vol. 54 (2017), pp. 49-60.
51. Image Structure Retrieval via L0 Minimization. Sun Y., Schaefer S., and Wang W. *Transactions on Visualization and Computer Graphics*, Vol. 24, No. 7, pp. 2129-2139 (2017).
52. Isometry-Aware Preconditioning for Mesh Parameterization. Claici S., Bessmeltsev M., Schaefer S., and Solomon J. *Computer Graphics Forum* (Proceedings of the Symposium on Geometry Processing), Vol. 36, pp. 37-47 (2017).
53. k-Curves: Interpolation at Local Maximum Curvature. Yan Z., Schiller S., Wilensky G., Carr N., and Schaefer S. *ACM Transactions on Graphics* (Proceedings of SIGGRAPH, 28% acceptance), Vol. 36, No. 4, pp. 129:1-129:7 (2017).
54. Simplicial Complex Augmentation Framework for Bijective Maps. Jiang Z., Schaefer S., and Panozzo D. ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia, 25% acceptance), Vol. 36, No. 6, pp. 186:1-186:9 (2017).
55. Circle Reproduction with Interpolatory Curves at Local Maximal Curvature Points. Yan, Z., Schiller S., and Schaefer S. To appear in *Computer Aided Geometric Design* (2019).
56. A Family of Barycentric Coordinates for Co-Dimension 1 Manifolds with Simplicial Facets. Yan, Z. and Schaefer S. To appear in *Computer Graphics Forum* (Proceedings of the Symposium on Geometry Processing) (2019).

Reviewed Conference Publications

57. A Factored Interpolatory Subdivision Scheme for Quadrilateral Surfaces. Schaefer S., Warren J. *Curves and Surface Fitting: Saint Malo 2002*, pp. 373-382.
58. Smooth Geometry Images. Losasso F., Hoppe H., Schaefer S., Warren J. *ACM SIGGRAPH/Eurographics Symposium on Geometry Processing 2003*, pp. 138-145 (35% acceptance).
59. Adaptive Vertex Clustering Using Octrees. Schaefer S., Warren J. *Proceedings of SIAM Geometric Design and Computing 2003*, pp. 491-500.
60. Smooth Subdivision of Tetrahedral Meshes. Schaefer S., Hakenberg J., Warren J. *ACM SIGGRAPH/Eurographics Symposium on Geometry Processing 2004*, pp. 151-158 (29% acceptance).
61. Lofting Curve Networks using Subdivision Surfaces. Schaefer S., Warren J., Zorin D. *ACM SIGGRAPH/Eurographics Symposium on Geometry Processing 2004*, pp. 105-116 (29% acceptance).
62. Dual Marching Cubes: Primal Contouring of Dual Grids. Schaefer S., Warren J. *Proceedings of Pacific Graphics 2004*, pp. 70-76 (19% acceptance).
63. Subdivision Schemes and Attractors. Schaefer S., Levin D., Goldman R. *ACM SIGGRAPH/Eurographics Symposium on Geometry Processing 2005*, pp. 171-180 (25% acceptance).
64. A Geometric Construction of Coordinates for Convex Polyhedra using Polar Duals. Ju T., Schaefer S., Warren J., Desbrun M. *ACM SIGGRAPH/Eurographics Symposium on Geometry Processing 2005*, pp. 181-186 (25% acceptance).
65. Freeform Curves on Spheres of Arbitrary Dimension. Schaefer S., Goldman R. *Proceedings of Pacific Graphics 2005*, pp. 160-162 (36% acceptance).
66. Example-Based Skeleton Extraction. Schaefer S. and Yuksel C. *ACM SIGGRAPH/Eurographics Symposium on Geometry Processing 2007*, pp. 153-162 (28% acceptance).

67. Exact Evaluation of Non-Polynomial Subdivision Schemes at Rational Parameter Values. Schaefer S. and Warren J. *Proceedings of Pacific Graphics 2007*, pp. 321-330 (22% acceptance).
68. On the Parameterization of Catmull-Rom Curves. Yuksel C., Schaefer S. and Keyser J. *SIAM/ACM Joint Conference on Geometric and Physical Modeling 2009*, pp. 47-53 (28% acceptance).
69. Suggestive Hatching. Singh M. and Schaefer S. *Computational Aesthetics 2010*, pp. 25-32 (38% acceptance).

Book Chapters

70. Multi-Sided Patches via Barycentric Coordinates. Schaefer, S. In Generalized Barycentric Coordinates in Computer Graphics and Computational Mechanics. Ed. Hormann, K. and Sukumar, N. CRC Press, 2017. 135-146.

Technical Reports

71. Dual Contouring: "The Secret Sauce". Schaefer S. and Warren J. Rice University Technical report TR 02-408.
72. Barycentric Coordinates for Convex Sets. Warren J., Schaefer S., Hirani A., Desbrun M., Rice University Technical Report.
73. Approximating Catmull-Clark Subdivision Surfaces with Bicubic Patches. Loop C. and Schaefer S. Microsoft Research Technical Report, MSR-TR-2007-44.
74. Circumcentric Dual Cells with Negative Area. Dyer R. and Schaefer S. Simon Fraser University Technical Report, CMPT2009-6.

Conference and Invited Talks

1. Interpolatory Subdivision for Surfaces of Revolution, talk at SIAM Conference on Geometric Design and Computing, Sacramento, CA (November 2001).
2. Dual Contouring of Hermite Data, paper presentation at ACM SIGGRAPH, San Antonio, TX (July 2002).
3. A Factored Approach to Tri/Quad Subdivision, talk at SIAM Conference on Geometric Design and Computing, Seattle, WA (November 2003).
4. Adaptive Vertex Clustering Using Octrees, talk at SIAM Conference on Geometric Design and Computing, Seattle, WA (November 2003).
5. Building Smooth 3D Deformations using Tetrahedral Subdivision, talk at Second Annual Workshop of Deformable Modeling ITR, Houston, TX (March 2004).
6. Smooth Subdivision of Tetrahedral Meshes, paper presentation at ACM SIGGRAPH/Eurographics Symposium on Geometry Processing, Nice, France (July 2004).
7. Lofting Curve Networks Using Subdivision Surfaces, paper presentation at ACM SIGGRAPH/Eurographics Symposium on Geometry Processing, Nice, France (July 2004).
8. A Geometric Construction of Coordinates for Convex Polyhedra using Polar Duals, paper presentation at ACM SIGGRAPH/Eurographics Symposium on Geometry Processing, Vienna, Austria (July 2005).
9. Mean Value Coordinates for Closed Triangular Meshes, talk at TexGraph, College Station, TX (May 2005).
10. Mean Value Coordinates for Closed Triangular Meshes, paper presentation at ACM SIGGRAPH, Los Angeles, CA (August 2005).

11. Approximating Catmull-Clark Patches, talk at TexGraph, College Station, TX (May 2006).
12. A Simple Approach to Nonlinear Subdivision, talk at Curves and Surfaces, Avignon, France (June 2006).
13. Image Deformation using Moving Least Squares, paper presentation at ACM SIGGRAPH, Boston, MA (August 2006).
14. Approximate Catmull-Clark Patches, invited talk at Trinity University, San Antonio, TX (November 2006).
15. Mean Value Coordinates for Closed Shapes, invited talk at Trinity University, San Antonio, TX (February 2007).
16. Example-Based Skeleton Extraction, paper presentation at ACM SIGGRAPH/Eurographics Symposium on Geometry Processing, Barcelona, Spain (July 2007).
17. Exact Evaluation of Non-Polynomial Subdivision Schemes at Rational Parameter Values, paper presentation at Pacific Graphics, Maui, HI (October 2007).
18. Barycentric Coordinates for Closed, Convex Curves, talk at SIAM Conference on Geometric Design and Computing, San Antonio, TX (November 2007).
19. Manifold Dual Contouring, talk at the Dagstuhl Workshop on Geometric Modeling, Dagstuhl, Germany (May 2008).
20. Approximate Catmull-Clark Patches, paper presentation at ACM SIGGRAPH, Los Angeles, CA (August 2008).
21. Simplification of Articulated Meshes, talk at the Workshop on Computational Mathematics of Discrete Surfaces, Banff, Canada (February 2009).
22. Suggestive Hatching, paper presentation at Computational Aesthetics, London, UK (June 2010).
23. Approximating Subdivision Surfaces for Hardware Tessellation, talk at Curves and Surfaces, Avignon, France (June 2010).
24. Scales and Scale-Like Structures, paper presentation at ACM SIGGRAPH/Eurographics Symposium on Geometry Processing, Lyon, France (July 2010).
25. Parameterization of Subdivision Surfaces, paper presentation at ACM SIGGRAPH, Los Angeles, CA (July 2010).
26. Surface Reconstruction and Compression, talk at the DARPA GRID II Workshop, Washington, D.C. (August 2010).
27. Approximating Subdivision Surfaces for Hardware Tessellation, invited talk at Washington University, St. Louis, MO (October 2010).
28. Approximating Subdivision Surfaces for Hardware Tessellation, invited talk at Texas State University, San Marcos, TX (December 2010).
29. Surface Reconstruction using Discrete Indicator Functions, talk at the IAMCS Workshop on Visualization in Biomedical Computation, College Station, TX (February 2011).
30. Exact Evaluation of Non-polynomial Subdivision Schemes at Rational Parameter Values, talk at the Approximation Theory Conference, Nashville, TN (May 2011).
31. Construction and Manipulation of Discrete Indicator Functions, talk at the Dagstuhl Workshop on Geometric Modeling, Dagstuhl, Germany (May 2011).
32. Computer Graphics, invited talk at Trinity University, San Antonio, TX (September 2011).
33. Parameterization Aware MIP-Mapping, invited talk at University of Lugano, Lugano, Switzerland (September 2012).
34. Approximate Catmull-Clark Surfaces and their Parameterization, talk at the New Trends in Subdivision Workshop, Milan, Italy (September 2012).

35. Generalized Barycentric Coordinates, talk at the Workshop on Algebraic Geometry and Geometric Modeling, Banff, Canada (January 2013).
36. Rasterization and Back Again: Aliasing and Computer Graphics, invited talk at KAUST, Saudi Arabia (April 2013).
37. Mesh Denoising via L0 Minimization, talk at the Dagstuhl Workshop on Geometric Modeling, Dagstuhl, Germany (May 2014).
38. Cardinality Constrained Texture Filtering, invited talk at Trinity University, San Antonio, TX (September 2014).
39. Cardinality Constrained Texture Filtering, invited talk at Hong Kong University, Hong Kong, China (October 2014).
40. Aliasing in Solid and Geometric Modeling, Keynote talk at SPM 2014, Hong Kong, China (October 2014).
41. Bijective Parameterization with Free Boundaries. Keynote talk at Curves and Surfaces 2016, Tonsberg, Norway (June 2016).
42. Digital Taxidermy: Bijective Parameterization with Free Boundaries. Invited talk Lehigh University 2018, Bethlehem, PA (December 2018).

Teaching Experience

- CPSC 689: "Special Topics in Surface Deformation and Reconstruction" (Fall 2006)
- CPSC/CSCE 441: "Computer Graphics" (Spring 2007, Fall 2008, Fall 2009, Spring 2011, Spring 2012, Fall 2013, Spring 2014, Fall 2014, Fall 2016, Fall 2017)
- CPSC/CSCE 645: "Geometric Modeling" (Fall 2007, Spring 2009, Fall 2010, Spring 2013, Fall 2015)
- CPSC/CSCE 489: "Computer Game Development" (Spring 2008, Spring 2009, Spring 2010, Fall 2011, Fall 2013)
- CSCE 221: "Data Structures and Algorithms" (Summer 2013, Spring 2015, Spring 2017, Fall 2018)
- CSCE 181: "Introduction to Computing" (Fall 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2017, Spring 2018, Fall 2018, Spring 2019)
- CSCE 481: "Seminar" (Fall 2016, Spring 2017)

Reviewer/Referee Experience

- ACM SIGGRAPH
- ACM Transactions on Graphics
- IEEE Visualization
- Eurographics
- SIGGRAPH ASIA
- The Visual Computer
- Computer-Aided Design
- Symposium on Geometry Processing
- Computer Aided Geometric Design
- Journal of Zhejiang University SCIENCE
- Graphical Models (GMOD)
- Journal of Virtual Reality and Broadcasting
- EuroVis

- Eurographics Symposium on Rendering
- Computer Graphics Forum
- Computers & Graphics
- International Journal of Image and Graphics
- Journal of Computing and Information Science
- Advances in Computational Mathematics
- Computers Graphics and Applications
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- International Journal of Computer Applications in Technology
- Mathematical and Computer Modeling
- SIAM Journal of Mathematical Analysis
- International Symposium on Visual Computing
- Shape Modeling International
- Pacific Graphics
- ACM Symposium on Solid and Physical Modeling
- Algorithms
- IEEE Pacific Visualization
- Journal of Computer Science and Technology
- ASME International Design Engineering Technical Conference
- Abstract and Applied Analysis
- Journal of Mathematics and the Arts
- Journal of Computers
- ACM Symposium on Computational Geometry
- Eurographics Workshop on High Performance Graphics
- IEEE Transactions on Multimedia
- International Journal of Advanced Robotic Systems
- IEEE Scientific Visualization
- Computing Surveys
- International Journal of Image and Graphics

Editorial Positions

- Associate Editor, Graphical Models (GMOD), 2010-present
- Associate Editor, The Visual Computer, 2010-2016
- Associate Editor, Computed Aided Design, 2015-present
- Associate Editor, Transactions on Visualization and Computer Graphics, 2016-present
- Associate Editor, ACM Transactions on Graphics, 2017-present
- Guest Editor, Computer Aided Design, 2010-2013, 2015
- Guest Editor, Computer Aided Geometric Design, 2010-2012

Program Committees

- Program co-chair of Geometric Modeling and Processing (2010)
- Program co-chair of the Symposium on Geometry Processing (2011)
- Program co-chair of Shape Modeling International (2012)
- Program co-chair of Solid and Physical Modeling (2015, 2016)
- Conference co-chair of Geometric Modeling and Processing (2018)

- ACM SIGGRAPH Papers Committee (2011, 2012, 2016)
- ACM SIGGRAPH Asia Papers Committee (2011, 2017)
- ACM SIGGRAPH Unified Jury (2009, 2010, 2013, 2014)
- ACM SIGGRAPH Conflict of Interest Coordinator (2019)
- Eurographics Short Papers (2012)
- Symposium on Geometry Processing (2008, 2009, 2010, 2012, 2013, 2014, 2015, 2016, 2017, 2018)
- Pacific Graphics (2007, 2011, 2012, 2014)
- ACM Symposium on Solid and Physical Modeling (2008, 2010, 2014, 2017)
- SIAM/ACM Joint Conference on Geometric and Physical Modeling (2009, 2011, 2013)
- Shape Modeling International (2009, 2010, 2011, 2013, 2014, 2015)
- Sibgrapi (2011)
- Computational Aesthetics (2011, 2012, 2013, 2014)
- International Symposium on Visual Computing (2007, 2008, 2009, 2010, 2011, 2012, 2013)
- Geometric Modeling and Processing (2012, 2015, 2016, 2019)
- Computer Graphics International (2013)
- Sketch-Based Interfaces and Modeling (2013, 2014)
- Non-Photorealistic Animation and Rendering (2013, 2014)
- Eurographics (2015)

University Service

- Library Committee (2006-2007)
- Undergraduate Curriculum Committee (2007-2008, 2013-present)
- Computer Science Advisory Committee (2008-2009, 2013-2016, 2017-present)
- Computer Engineering Coordinating Committee (2014-present)
- Visualization Joint Committee (2014-present)
- Undergraduate Recruiting Committee (2008-2009)
- Undergraduate Student Awards Committee (2009-2010, 2011-2013, 2017-present)
- Web Advisory Committee (2010-2011)
- Visualization Faculty Search Committee (2011-2012)
- University Honor Council (2013-present)
- College of Engineering Awards Committee (2013-2015)
- Faculty Advisor for Texas A&M E-Sports Student Group (2012-present)
- Faculty Advisor for Texas A&M Science Fiction Association Student Group (2017-2018)
- CSCE ABET Coordinator (2013-2017)
- CSCE Faculty Search Committee (2014-2015)
- Chair of the CSCE APT Faculty Search Committee (2016-2017)
- Chair of the Undergraduate Curriculum Committee (2015-2017, 2018-present)
- Engineering Science Curriculum Committee (2016-2017)
- Associate Department Head for Academics (2017-present)

- CSCE APT Faculty Search Committee (2017-present)
- CSCE Faculty Awards Committee (2017-2018)
- CSCE Graduate Awards Committee (2017-present)
- Chair of the Computing Fundamentals Task Force (2017-2018)
- Broadening Participation Taskforce Member (2018-present)
- Graduate Advisory Committee (2017-present)
- Graduate Fee Oversight Committee (2018-present)

Postdoctoral Scholars and Students

Postdoctoral Scholars Sponsored

- Kuiyu Li, 2010-2011, Intel.

PhD Students

- Mayank Singh, PhD 2011, University of Wisconsin La Crosse.
- Eric Landreneau, PhD 2011, Blizzard Entertainment.
- Josiah Manson, PhD 2014, Activision Research.
- Lei He, PhD 2014, Microsoft.
- Jason Smith, PhD 2016, Schlumberger.
- Zhipei Yan, in progress.

Masters Students

- Deepak Garg, MS 2013, Pimco.