February 2007

Curriculum Vitae for Peter F. Stiller

Dr. Peter F. Stiller
Professor of Mathematics and Computer Science
Associate Director Institute for Scientific Computation
Texas A&M University

Biographical Sketch

Date of Birth: January 11, 1951
Place of Birth: Green Bay, Wisconsin
Marital Status: Married
Name of Spouse: Vana Brown Stiller
Number of Children: 4

Current Office Address and Phone Number

623 Blocker Bldg.
Department of Mathematics
Texas A&M University
College Station, TX 77843-3368

979-862-2905 (phone)
979-845-5827 (fax)

Current Home Address and Phone Number

5604 Hampton Court
Bryan, TX 77802

979-774-0324

Area of Specialization

Algebraic Geometry

Other Areas of Expertise

Algebraic Number Theory and Automorphic Forms
Geometric Modeling and Computational Geometry
Symbolic Computation and Computational Algebraic Geometry
Geometry and Applications to Image Understanding, Computer Vision, and Robotics

Education and Degrees

S.B. Mathematics 1973 Massachusetts Institute of Technology
S.B. Economics 1973 Massachusetts Institute of Technology
M.A. Mathematics 1974 Princeton University
Ph.D. Mathematics 1977 Princeton University

Positions Held

9/93 – present	Professor of Mathematics and Computer Science Texas A&M University
9/87 – present	Professor of Mathematics Texas A&M University
9/99 – present	Associate Director Institute for Scientific Computation Texas A&M University
1/94 – 8/99	Assistant Director Institute for Scientific Computation Texas A&M University
7/94 – 8/94	Visiting Research Professor Research Institute for Symbolic Computation (RISC) Linz, Austria
11/91 – 12/91	Visiting Fellow Army High Performance Computing Research Center (AHPCRC) Minnesota Supercomputing Institute University of Minnesota Minneapolis, MN
5/90 – 7/90	Member, School of Mathematics Institute for Advanced Study (IAS) Princeton, NJ
8/88 – 8/89	Member, School of Mathematics Institute for Advanced Study (IAS) Princeton, NJ
8/86 – 7/87	MSRI Research Professor Mathematical Sciences Research Institute Berkeley, CA
1/86 – 6/86	Associate Professor of Mathematics Louisiana State University Baton Rouge, LA
9/84 – 8/87	Associate Professor of Mathematics Texas A&M University College Station, TX
6/82 – 6/83	NSF-CNRS Exchange Fellow Institut des Hautes Etudes Scientifiques Bures-sur-Yvette, France
1/81 – 12/81	Research Fellow Sonderforschungsbereich, “Theoretische Mathematik” Universitat Bonn Bonn, Germany (now the Max-Planck-Institut fur Mathematik)

8/79 – 7/80	NATO Postdoctoral Fellow Institut des Hautes Etudes Scientifiques Bures-sur-Yvette, France
9/77 – 8/84	Assistant Professor of Mathematics Texas A&M University College Station, TX

Research

Papers in Print (refereed)

1. Stiller, P. F. and Abbott, K., "Recognizing Point Configurations in Full Perspective," *Electronic Imaging, Vision Geometry XV*, Vol. 6499, San Jose, CA, 12 pages, to appear 1/07.

2. Stiller, P. F. and Arnold, D. G., "Mathematical Aspects of Shape Analysis for Object Recognition," *Electronic Imaging, Visual Communications and Image Processing*, Vol. 6508, San Jose, CA, 12 pages, to appear 1/07.

3. Stiller, P. F., "Robustness and statistical analysis of object/image metrics," *Electronic Imaging, Vision Geometry XIV*, Vol. 6066, San Jose, CA, 1/06, pp. 1-9 (2006).

4. Stiller, P. F., "Recognition of configuration of lines I - Weak Perspective Case," *Proceedings SPIE Int'l Symposium on Optical Science and Technology, Mathematical Methods in Pattern and Image Analysis*, Vol. 5916, Jaakko Astola Editor, San Diego, CA, 8/05, 13 pages (2005).

5. Stiller, P. F., "The relationship between shape under similarity transformations and shape under affine transformations," *Proceedings SPIE Int'l Symposium on Optical Science and Technology, Mathematics of Data/Image Coding, Compression, and Encryption VII, with Applications*, Vol. 5561, Mark Schmalz Editor, Denver, CO, 8/04, pp. 108-116 (2004).

6. Stiller, P. F., "Vision metrics and object/image relations II: Discrimination metrics and object/image duality," *Electronic Imaging, Vision Geometry XII*, Vol. 5300, San Jose, CA, 1/04, pp. 74-85 (2004).

7. Stiller, P. F., "Object/image relations and vision metrics I," *Proceedings SPIE Int'l Symposium on Optical Science and Technology, Mathematics of Data/Image Coding, Compression, and Encryption VI, with Applications*, Vol. 5208, Mark Schmalz Editor, San Diego, CA, 8/03, pp. 165-178 (2003).

8. Stiller, P. F., "Object Recognition from a Global Geometric Perspective - Invariants and Metrics," *Proceedings SPIE International Conference, Vision Geometry XI*, Vol. 4794, Seattle, WA, 7/02, to appear, 10 pgs. (2002).

9. Schenck, H. and Stiller, P. F., "Cohomology Vanishing and a Problem in Approximation Theory," *Manuscripta Mathematica*, Vol. 107, No.1, pp. 43–58 (2002).

10. Stiller, P. F., "Global Invariant Methods for Object Recognition," *Proceedings SPIE International Conference, Vision Geometry X*, Vol. 4476, San Diego, CA, 7/01, pp. 13–21 (2001).

11. Lewis, R. and Stiller, P. F., "Solving the Recognition Problem for Six Lines using the Dixon Resultant," *Journal of Mathematics and Computers in Simulation*, Issue on High Performance Symbolic Computation: "Grand Challenges in Computer Algebra", Vol. 49, No. 3, North-Holland Elsevier Publishing, Amsterdam, pp. 205–219 (1999).

12. Stiller, P. F. and Huber, B., "Geometric Hashing and Object Recognition," *Proceedings SPIE International Conference, Vision Geometry VIII*, Vol. 3811, Denver, CO, 7/99, pp. 204–211 (1999).

13. Huber, B., Stiller, P. F., Wan, C. S., and Shah, T. N., "Invariant Geometric Hashing," *Proc. of the 27th Workshop on Applied Imagery and Pattern Recognition, AIPR '98: Advances in Computer Assisted Recognition*, Washington, D.C., 10/98, Vol. 3584, pp. 39–44 (1999).

14. Wilmarth, S., Amato, N. M., and Stiller, P. F., "MAPRM: A Probabilistic Roadmap Planner with Sampling on the Medial Axis of the Free Space," *Proc. of the 1999 IEEE International Conf. on Robotics and Automation (ICRA '99)*, May 1999, pp. 1024–1031 (1999).

15. Wilmarth, S., Amato, N. M., and Stiller, P. F., "Motion Planning for a Rigid Body Using Random Networks on the Medial Axis of the Free Space," *Proc. of the 15th Annual ACM Symposium on Computational Geometry (SoCG '99)*, June 1999, pp. 173–180 (1999).

16. Stiller, P. F., "Object recognition via configurations of lines," *Proceedings SPIE Int'l Conf., Vision Geometry VII*, Vol. 3454, San Diego, CA, 7/98, pp. 76–86 (1998).

17. Huber, B., Stiller, P. F., and Wan, C. S., "Geometric Content-Based Indexing," *Proc. of the 26th Workshop on Applied Imagery and Pattern Recognition: Exploiting New Image Sources*, Washington, D.C., 10/97, Vol. 3240, pp. 96–104 (1998).

18. Stiller, P. F., "Symbolic Computation of Object Image Equations," *Proc. International Symposium on Symbolic and Algebraic Computation (ISSAC)*, Maui, Hawaii, 7/97, pp. 359–364 (1997).

19. Stiller, P. F., "General approaches to recognizing geometric configurations from a single view," *Proceedings SPIE Int'l Conf., Vision Geometry VI*, Vol. 3168, San Diego, CA, 7/97, pp. 262–273 (1997).

20. Stiller, P. F., Asmuth, C. A., and Wan, C. S., "Single View Recognition - The Perspective Case," *Proceedings SPIE International Conf., Vision Geometry V*, Vol. 2826, Denver, CO, 8/96, pp. 226–235 (1996).

21. Miranda, R. and Stiller, P. F., "Torsion Sections of Elliptic Surfaces," *Arkiv for Mathematik*, Vol. 33, No. 1, pp. 117–134 (1995).

22. Farahat, A. O., Stiller, P. F., and Trinkle, J. C., "On the Geometry of Contact Formation Cells for Systems of Polygons," *IEEE Transactions on Robotics and Automation*, Vol. 11, No. 4, pp 522–536 (1995). (IEEE Trans. on Robot and Autom. is the leading journal in the field.)

23. Farahat, A. O., Stiller, P. F., and Trinkle, J. C. "First-Order Stability Cells of Active Multi-Rigid-Body Systems," *IEEE Transactions on Robotics and Automation*, Vol. 11, No. 4, pp. 545–557 (1995). (IEEE Trans. on Robot and Autom. is the leading journal in the field.)

24. Lau, W. W., Stiller, P. F., and Trinkle, J. C., "Some Remarks on the Geometry of Contact Formation Cells," *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Pittsburg, PA, 8/95, pp. 419–426 (1995).

25. Farahat, A.O., Stiller, P. F., and Trinkle, J. C., "On the Algebraic Geometry of Contact Formation Cells for Systems of Polygons," *IEEE International Conf. on Robotics and Automation (ICRA)*, San Diego, CA, Vol. 4, pp. 3028–3035 (1994).

26. Stiller, P. F., Asmuth, C. A., and Wan, C. S., "Invariants, Indexing, and Single View Recognition," *Proceedings of ARPA Image Understanding Workshop*, Monterrey, CA, pp. 1422–1428 (1994).

27. Farahat, A. O., Stiller, P. F., and Trinkle, J. C., "On the Algebraic Geometry of Contact Formation Cells for Systems of Polygons," *WAFR, First Workshop on Algorithmic Foundations of Robotics*, San Francisco, CA, 2/94, A. K. Peters Publishers, Boston, MA, pp. 477–494 (1994).

28. Trinkle, J. C., Farahat, A. O., and Stiller, P. F., "Second-Order Stability Cells of Frictionless Rigid Body Systems," *IEEE International Conference on Robotics and Automation (ICRA)*, Vol. 4, San Diego, CA, pp. 2815–2821 (1994).

29. Farahat, A. O., Ram, R. C., Stiller, P. F., and Trinkle, J. C., "Dexterous Manipulation Planning and Execution for an Enveloped Slippery Object," *Proc. IEEE International Conf. on Robotics and Automation*, pp. 1642–1649, Atlanta, GA, (1993).

30. Stiller, P. F., "The Arithmetic and Geometry of Elliptic Surfaces," *Contemporary Math.*, Vol. 133, AMS, pp. 195–204 (1992).

31. Stiller, P. F., "Elliptic surfaces with irregularity one," *Manuscripta Mathematica*, 60, pp. 299–321 (1989).

32. Stiller, P. F., "Classical Automorphic Forms and Hypergeometric Functions," *Jour. of Number Theory*, Vol. 28, No. 2, pp. 219–232 (1988).

33. Stiller, P. F., "The Picard numbers of elliptic surfaces with many symmetries," *Pacific Journal of Math.*, Vol. 128, No. 1, pp. 157–189 (1987).

34. Stiller, P. F., "Vector bundles on projective spaces and systems of partial differential equations I," *Transactions of the American Mathematical Society*, Vol. 298, No. 2, pp. 537–548 (1986).

35. Stiller, P. F., "Some applications of algebraic geometry to systems of partial differential equations and to approximation theory," *Proceedings of the Lefschetz Centennial Conference, Contemporary Mathematics*, Vol. 58, Part 1, AMS, pp. 239–250 (1986).

36. Stiller, P. F., "A note on automorphic forms of weight one and weight three," *Transactions of the American Mathematical Soc.*, Vol. 291, No. 2, pp. 503–518 (1985).

37. Stiller, P. F., "Automorphic forms and the Picard number of an elliptic surface," *Aspects of Mathematics*, Vol. E5, Vieweg Verlag, pp.1–194 (1984).

38. Stiller, P. F., "Special values of Dirichlet series, monodromy, and the periods of automorphic forms," *Memoirs Am. Math. Soc.*, Vol. 49, No. 299, pp. 1–130 (1984).

39. Stiller, P. F., "Certain reflexive sheaves on projective space and a problem in approximation theory," *Transactions Am. Math. Soc.*, Vol. 279, No. 1, pp. 125–142 (1983).

40. Stiller, P. F., "On the uniformization of certain curves," *Pacific Journal of Math.*, Vol. 107, No. 1, pp. 229–244 (1983).

41. Stiller, P. F., "Monodromy and invariants of elliptic surfaces," *Pacific Journal of Math.*, Vol. 92, No. 2, pp. 433–452 (1981).

42. Stiller, P. F., "Differential equations associated with elliptic surfaces," *Journal Math. Soc. Japan*, Vol. 32, No. 2, pp. 203-233 (1981).

43. Stiller, P. F., "Elliptic curves over function fields and the Picard number," *American Journal of Math.*, Vol. 102, No. 4, pp. 565-593 (1980).

Conference Proceedings in Print (unrefereed)

44. Trinkle, J. C., Stiller, P. F., and Pang, J.-S., "Planning Manipulation Tasks with Sliding and Rolling Contacts," *Proc. NSF Design, Manufacturing, and Industrial Innovation Grantees' Conference*, Albuquerque, NM, 1/96, pp. 211–212 (1996).

45. Lau W. W., Stiller, P. F., and Trinkle, J. C., "On the Connectivity of Physical Contact Formation Cells," *Proceedings of the IASTED International Conf. on Applications of Control and Robotics*, Orlando, pp. 41–46 (1996).

46. Trinkle, J. C., Stiller, P. F., and Pang, J.-S., "Planning Manipulation Tasks with Sliding and Rolling Contacts," *Proc. NSF Design, Manufacturing, and Industrial Innovation Grantees' Conference*, La Jolla, CA, 1/95 (1995).

47. Okamoto, E., Aitken, W., Blakley, G. R., and Stiller, P.F., "Simple Permutation Ciphers Using Permutation Polynomials," *Proc. International Symp. on Information Theory and its Apps.*, Sydney, Australia, 11/94, pp. 239–244 (1994).

Invited Book Chapter (refereed)

48. Arnold, G., Stiller, P. F., and Sturtz, K., "Object-Image Metrics for Generalized Weak Perspective Projection," *Statistics and Analysis of Shapes*, Hamid Krim and Anthony Yezzi, Jr. Editors, Series on Modeling and Simulation in Science, Engineering, and Technology, Birkhauser, pp. 253-279 (2006).

Other Publications

49. Stiller, P. F., "Aspects of ATR Theory," Air Force Office of Scientific Research White Paper (2001).

50. Stiller, P. F., "Algebra," *Microsoft Encarta 2000*, Microsoft Corporation, 42 pages (2000).

51. Stiller, P. F., "Polynomials: Resultants and Invariants," *Encyclopedia of Electrical and Electronics Engineering*, John Wiley and Sons Publishers, Vol. 16, pp. 539–551 (1999). (invited article)

Technical Reports

I have written a number of very substantial technical reports in connection with my funded research over the years. These involve original work on the applications of geometry, geometric modeling, and symbolic and geometric computation to a variety of problems:

52. Arnold, G., Stiller, P. F., Sturtz, K., "Geometric Methods for ATR - Invariants, Object/Image Equations, and Metrics," 48 pages (2006), preprint, under revision.

53. Wilmarth, S., Amato, N. M., and Stiller, P. F., "MAPRM: A probabilistic roadmap planner with sampling on the medial axis of the free space," Technical Report TR98-022, Dept. of Computer Science, Texas A&M University, Nov. 1998.

54. Wilmarth, S., Amato, N. M., and Stiller, P. F., "Motion planning for a rigid body using random networks on the medial axis of the free," Technical Report TR98-028, Dept. of Computer Science, Texas A&M University, Dec. 1998.

55. Stiller, P. F., "Space Resection by Collinearity," Technical Report for the Naval Air Warfare Center, Patuxent River Naval Air Station, MD, pp. 1–14, Aug. 1997.

56. Stiller, P. F., "An Introduction to the Theory of Resultants," ISC Technical Report Series, ISC-96-02-MATH, pp. 1–46 (1996).

57. Stiller, P. F., "Sparse Resultants," ISC Technical Report Series, ISC-96-01-MATH, pp. 1–15 (1996).

58. Stiller, P. F., "An Introduction to Geometric Invariants for Image Understanding, Database Indexing, and Computer Vision," Naval Air Warfare Center Technical Report, pp. 1–36 (1996).

59. Stiller, P. F., "Attrition Modeling: Theory and Practice," Technical Report to U. S. Army Concepts Analysis Agency, Bethesda, MD, pp. 1–62 (1996).

60. Stiller, P. F., Asmuth, C. A., Wan, C. S., "A General Theory of Single View Recognition - The Affine Case - with Applications to Indexing Image Database for Content Based Retrieval," ISC Technical Report Series, ISC-94-16-MATH, pp. 1–41 (1994).

61. Stiller, P. F., "Applications of Differential Geometry and Stochastic Differential Equations to Selected Problems in Defense Analysis," Technical Report to U.S. Army Concepts Analysis Agency, Bethesda, MD, pp. 1–79 (1992).

62. Stiller, P. F., "Aspects of RPV Sensor Mount Dynamics," Technical Report to the Naval Air Warfare Center, Warminster, PA, pp. 1–40 (1992).

63. Stiller, P. F., "Scientific Visualization," Technical Report to the U.S. Army's Ballistic Research Laboratory, pp. 1–168 (1992).

64. Stiller, P. F., "Advanced Geometry RPV Subroutines," Technical Report to the Naval Air Warfare Center, Warminster, PA, pp. 1–48 (1991).

65. Stiller, P. F., "Spline Methods for TMR," Technical Report to Systems Test and Evaluation White Sands, White Sands Missile Range, pp. 1-21 (1991).

66. Stiller, P. F., "Automatic Target Recognition and 3D-Image Generation," Technical Report to the U.S. Army's Center for Night Vision and Electro-Optics, pp. 1–25 (1990).

67. Stiller, P. F., "Geometric Problems in Computational Fluid Dynamics I and II," David Taylor Research Laboratory Technical Reports, U.S. Navy, pp. 1–37 and 1–39 (1988 and 1989).

68. Davisson, E. O. (BRL) and Stiller, P. F. (Texas A&M), "Curvature and Principal Directions Calculations for MGED Primitives Using RT," Ballistic Research Laboratory Technical Report, pp. 1–22 (1987).

Software Development

Developed JAVA and VRML tools as part of an integrated image recognition and image database management / content-based retrieval application.

- Object Recognition and Database Indexing Software. This suite of programs exploits geometric invariants to index object and image databases for content-based retrieval. (1998)
- VMRL Geometry Construction Tools. These routines provide a set of tools to construct and view various geometric feature sets as part of the analysis of our image understanding algorithms. (1997)

Developed a Geometric Modeling code for CFD applications which is currently in use at DARPA, Navy, and Army Labs. (1988-1989)

Professional Honors, Awards, and Appointments

- Joint appointment as Professor of Computer Science, Texas A&M University, 9/93 - present.
- Director of the Center for Geometric and Symbolic Computation, 9/98 - present.
- Member, Advisory Board for the Cognition and Instructional Technologies Laboratory , College of Education, 9/96 - 5/99.
- General Member, Mathematical Sciences Research Institute, Program in Symbolic Computation, 8/98 to 1/99.
- Member, Organizing Committee for the Workshop on Symbolic Computation scheduled for October 12-16, 1998, as part of the Program on Symbolic Computation in Geometry and Analysis, 8/98 to 1/99, at the Mathematical Sciences Research Institute , Berkeley, California.
- General Member, Mathematical Sciences Research Institute, Program in Complex Algebraic Geometry, 9/92-1/93.
- Visiting Consultant on Industrial Collaboration in Mathematics, Geometry Center, University of Minnesota, 1/31/96 -2/4/96.
- Named Burton Scholar, Texas A&M University, for Spring 1994 (see funding).

Colloquia, Seminars, Research Conferences, Workshops, and Other Talks:

- Invited speaker Rutgers University, April 1977.
- Invited speaker Rice University, March 1979.
- AMS Special Session, New York, April 1979. Chairman of Session on Algebraic Geometry.
- NSF funded participant in Regional Conference on Algebraic Geometry, May 5-12, 1979 at University of Georgia.

- Invited speaker, Sonderforschungsbereich, Universitat Bonn, Bonn, West Germany, January 29 to February 5, 1980.
- Invited speaker in the Oberseminar Harder-Hirzebruch, Sonderforschungsbereich, Universitat Bonn, Bonn, West Germany, November 12, 1981.
- Invited speaker in the Mathematischien Gesellschaft of the Mathematische Institut, Gottingen, West Germany, April 19-24, 1983.
- Invited participant Warwick Symposium on Algebraic Geometry, Warwick University, Coventry, England, May 10-13, 1983.
- Invited participant 24th Arbeitstagung, Max-Plank-Institut fur Mathematik, Bonn, West Germany, June 16-23, 1983.
- Invited speaker Special Session of the AMS on "Automorphic Forms" held in San Luis Obispo, California, November 1983.
- Invited speaker Special Session of the AMS on "Algebraic Geometry" held in Minneapolis, Minnesota, November 1984.
- Invited speaker Lefschetz Centennial Conference on Algebraic Geometry and Differential Equations held in Mexico City, December 1984.
- Invited speaker University of Georgia, March 18, 1985.
- Invited speaker North Carolina State University, March 20, 1985.
- Invited speaker Louisiana State University, June 13, 1985.
- Invited participant and speaker American Mathematical Society Summer Research Institute on Algebraic Geometry, Brunswick, Maine, July 8-26, 1985.
- Invited speaker Theta Functions Seminar, Louisiana State University, April 1986.
- National Math Awareness Week talk on "The number of solutions of equations over finite fields", Louisiana State University, April, 1986.
- Invited participant Conference on Geometry and Topology, Lehigh University, May 23-24, 1986.
- Speaker, AMS Regional Meeting, Denton, Texas, November 1, 1986.
- Invited colloquium speaker University of Kentucky, November 25, 1986.
- Invited participant SIAM Conference on University-Industrial Collaborations in the Mathematical Sciences, Claremont, California, January 12-14, 1987.
- Invited participant Conference on Geometry and Topology, Lehigh University, May 21-23, 1987.
- Invited speaker Mountain West Algebraic Geometry Workshop, Oklahoma State University, April 22-24, 1988.

- Invited participant Conference on Geometry and Topology, Lehigh University, May 27-30, 1988.
- Invited speaker Algebraic Geometry Seminar, Rutgers University, February 6 and 13, 1989.
- Invited colloquium speaker, "The geometry and arithmetic of elliptic surfaces," Lehigh University, February 8, 1989.
- Invited colloquium speaker, University of Texas, Arlington, Texas, November 20, 1989.
- Invited participant Workshop on Number Theory and Algorithms, Mathematical Sciences Research Institute, Berkeley, California, March 1990.
- Invited participant Conference on Geometry and Topology, Lehigh University, May 1990.
- Invited participant Workshop on Algebraic Issues in Geometric Computation, DIMACS, Rutgers University, May 1990.
- Organizer and speaker, Special Session on Algebraic Geometry, AMS Regional Meeting, Denton, Texas, November 2-3, 1990.
- Invited speaker Texas Geometry and Topology Conference, Texas A&M University, April 13-14, 1991.
- Invited participant Workshop on Computational Support for Discrete Mathematics, DIMACS, Rutgers University, March 12-14, 1992.
- NSF funded participant in NSF Regional Geometry Institute on Computational Algebraic Geometry, Amherst College, July 6-24, 1992.
- Invited participant Workshop on Algebraic Cycles, Mathematical Sciences Research Institute (MSRI), September 21-23, 1992.
- Invited participant Workshop on Higher Dimensional Complex Geometry, MSRI, November 16-18, 1992.
- Member MSRI during Special Year in Complex Algebraic Geometry 1992-1993.
- Invited participant NSF Regional Geometry Institute on Higher Dimensional Complex Geometry, Park City, Utah, June 21-July 16, 1993.
- Invited colloquium speaker Stevens Institute of Technology, "Geometry as Applied Mathematics," Hoboken, NJ, March 30, 1994.
- Invited participant Conference on Geometry and Topology, Lehigh University, June 11-12, 1994.
- AMS/NSF funded participant International Congress of Mathematics, Zurich, Switzerland, August 3-11, 1994.
- Invited colloquium speaker (2 one hour talks) Mathematics Institute, Johannes Kepler University, Linz, Austria, August 17, 1994.
- TCU Research Fund Lectureship, Texas Christian University, "Geometry and Arithmetic of Elliptic Surfaces," February 21, 1995.

- Invited speaker IMACS Conference on Applications of Computer Algebra, "Geometry and Polynomial Systems: Theory and Application," Albuquerque, NM, May 16-19, 1995.
- Invited participant, AMS Summer Institute in Algebraic Geometry, Santa Cruz, CA, July 10-28, 1995.
- Invited participant Conference on Fermat's Last Theorem, Boston University, Boston, MA, August 8-18, 1995.
- Consultant and speaker on Industrial Collaboration in Mathematics, Geometry Center (Center for the Computation and Visualization of Geometric Structures), University of Minnesota, January 31, 1996 to February 4, 1996.
- NSF funded participant, Elliptic Curves and Automorphic Forms Conference, National Academy of Science, Washington, D. C., March15-17, 1996.
- Invited speaker, SPIE International Conference, Vision Geometry V, Denver, August 6-7, 1996.
- Invited speaker, AMS Special Session on Elliptic Surfaces, Lawrenceville, NJ, October 4-6, 1996.
- Invited participant, Workshop on Computational Algebraic Geometry, San Diego, CA, January 6-7, 1997.
- Invited speaker, AMS Special Session on Computational Algebraic Geometry, San Diego, CA, January 8-11,1997.
- Invited participant, Workshop on 4-Manifolds, Mathematical Sciences Research Institute, January 13-17, 1997.
- Speaker, GAT Seminar, Texas A&M University, "Torsion Sections of Elliptic Surfaces," January 21, 1997.
- Invited speaker, International Symposium on Symbolic and Algebraic Computation (ISSAC), Maui, Hawaii, July 21-23, 1997.
- Invited speaker, Int'l Assoc. for Mathematics in Computer Simulation (IMACS): Applications of Computer Algebra, Maui, Hawaii, July 23-25, 1997.
- Invited speaker, SPIE International Conference, Vision Geometry VI, "General Approaches to Recognizing Geometric Configurations from a Single View," San Diego, July 27-30, 1997.
- Invited Colloquium speaker, Sarnoff Corporation, "Testing for Geometric Consistency between Configurations of Features on 3D Objects and Features in 2D Images," Princeton, NJ, October 13, 1997.
- Invited speaker and session chairman, SPIE International Conference, Vision Geometry VII, "Object recognition via configurations of lines," San Diego, CA, July 20-22, 1998.
- Invited speaker, Seminar on Symbolic Computation, Mathematical Sciences Research Institute and the University of California, Berkeley, "Symbolic Computation and Computer Vision," Berkeley, California, October 20, 1998.

- Invited speaker, Air Force Research Lab, Wright Patterson Air Force Base, Ohio, March 15, 1999.
- NSF funded participant, Institute for Advanced Study/Park City Mathematics Institute, Arithmetic Algebraic Geometry, Park City, Utah, June 20 - July 10, 1999.
- Invited speaker and session chair, SPIE International Conference, Vision Geometry VIII, "Geometric Hashing and Object Recognition," Denver, CO, July 18-20, 1999.
- Invited speaker, Vexcel Corporation, "Object Recognition and Geometric Hashing," Boulder, Colorado, July 21, 1999.
- Co-organizer of the conference on Aspects of Algebraic Geometry and Commutative Algebra, Texas A&M University, May 18-20, 2000.
- Invited presentation, Air Force Scientific Advisory Board, Wright State University, "Invariant Methods for Single View Recognition and Database Indexing for Content-based Retrieval," Fairborn, Ohio, November 16, 2000.
- Invited speaker, AFIT Applied Math Colloquium, "Applications of Geometric Invariants to Image Understanding, Object Recognition, and Computer Vision," Air Force Institute of Technology, Wright Patterson AFB, Dayton, Ohio, November 17, 2000.
- Invited speaker and session chairman, SPIE International Conference, Vision Geometry X, "Global Invariant Methods for Object Recognition," San Diego, CA, July 29-30, 2001.
- Invited speaker, ATR Theory Workshop, "Invariant Methods for Object Recognition," Wright State University, Fairborn, OH, August 8-9, 2001.
- Invited speaker, SPIE International Conference, Vision Geometry XI, "Object Recognition from a Global Geometric Perspective - Invariants and Metrics," Seattle, WA, July 7-10, 2002.
- Invited speaker (Selected by the Air Force Office of Scientific Research as the Featured Speaker in the Automatic Target Recognition Emphasis Area), Air Force Scientific Advisory Board, "Geometric Methods for ATR: Invariants and Metrics," Wright Patterson AFB, Dayton, Ohio, October 10, 2002.
- Invited participant, Air Force Research Laboratory - Automatic Target Recognition Workshop, University of Dayton, Dayton, Ohio, October 11, 2002.
- Presentation, Sensors Directorate, Sensor ATR, Wright Patterson AFB, Dayton, Ohio, May 8, 2003. date? this was the branch meeting
- Invited Speaker, AFOSR 2003 Program Review, "Shape Spaces, Object-Image Varieties, and Metrics for Object Recognition," Program in Applied and Computational Mathematics, Princeton University, Princeton, New Jersey, Organized by Ingrid Daubechies, June 5-7, 2003. (Check out the pictures)
- Invited Speaker, Air Force Research Lab, "Object-Image Metrics," Wright Patterson AFB, Dayton, Ohio, June 26, 2003.
- Invited Speaker, SPIE International Conference on Mathematics of Data/Image Coding, Compression, and Encryption VI, with Applications, "Vision Metrics and Object/Image Relations," San Diego, CA, August 5, 2003.

- Invited Speaker, University of Dayton, Mathematics Colloquium, "Shape Spaces, Metrics, and Object/Image Relations," Dayton, Ohio, June 29, 2004.
- Invited Speaker, SPIE International Conference on Mathematics of Data/Image Coding, Compression, and Encryption VII, with Applications, "The relationship between shape under similarity transformations and shape under affine transformations," Denver, CO, August 4, 2004.
- Invited Speaker, Vexcel Corporation, "Shape Theory and Invariant Metrics for Target and Object Recognition," Boulder, Colorado, August 5, 2004.
- Invited Participant and Presenter, Air Force Research Laboratory's Technology Expo and Industry Day, sponsored by AFRL/SNA, Target Recognition Technology Division, Wright Patterson Air Force Base, Dayton, Ohio, Nov. 30, 2004.
- Invited Speaker, DOD MURI Workshop on ATR Theory, "Object Image Metrics," Fairborn, Ohio, Dec. 1, 2004.
- Presentations, Air Force Research Lab, Wright Patterson Air Force Base, Dayton, Ohio, Jan. 17-22, 2005.
- Invited Speaker, AFOSR 2005 Program Review for Sensing, Imaging, and Object Recognition, "Shape, Shape Matching Metrics, and Learning Shape via Sampling (Shapelets)," Organized by Hamid Krim, Vision, Information, and Statistical Signal Theories and Applications Group, Electrical and Computer Engineering Department, North Carolina State University, Raleigh, NC, May 25-27, 2005.
- Invited Speaker, SPIE International Conference on Mathematical Methods in Pattern and Image Analysis, "Recognition of configurations of lines I - weak perspective case," San Diego, CA, August 3-4, 2005.
- Invited Participant, IMA Workshop on New Mathematics and Algorithms for 3-D Image Analysis, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN, Jan. 9-12, 2006.
- Invited Speaker and Session Chair for Digital Geometry and Topology, Electronic Imaging, Vision Geometry XIV, "Robustness and statistical analysis of object/image metrics," San Jose, CA, January 17-18, 2006.
- Invited Participant, IMA Workshop on Shape Spaces, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN, April 3-7, 2006.
- Colloquium Speaker, Purdue University, School of Electrical and Computer Engineering, May 11, 2006.
- Invited Speaker, Multi-modal Biometrics Workshop, "Object-Image Metrics," Wright Patterson Air Force Base, Dayton, OH, May 9-10, 2006.
- Invited Speaker, Conference on Visual Communications and Image Processing, "Mathematical Aspects of Shape Analysis for Object Recognition," San Jose, CA, 1/07.
- Invited Speaker and Chair of Session on Surface Reconstruction, Vision Geometry XV, "Recognizing Point Configurations in Full Perspective," San Jose, CA, 1/07.

Funding

Current Funding

1. Air Force Office of Scientific Research, "Geometric Methods for ATR: Shape Analysis, Object/Image Metrics, Shape Reconstruction, and Shape Statistics," $264,529, 07/01/07 to 06/30/10, TAMRF Project No. 0700389, recommended for award.

2. Air Force Office of Scientific Research, "Geometric Methods for ATR: Shape Spaces, Metrics, Object/Image Relations, and Shapelets," $255,232, 06/01/04 to 5/31/07, TEES Project No. 32550-21060 SC.

3. Texas Advanced Technology Project, Texas Higher Education Coordinating Board,"Non-Standard Splines for Geometric Modeling," with H. Schenck, $149,898, 1/1/04 to 8/31/06, TAMU Project No.160201.

4. National Science Foundation, NSF 05-515 Major Research Infrastructure Program, "Development of Spatially Immersive Visualization Facilities (Co-P.I. with Parke in Visualization Sciences, Broday in Landscape Architecture and Urban Planning, House in Visualization Sciences, and Smith in Psychology), $500,000, 8/01/05 to 7/31/08, Research Foundation Project No. 469081-00001

Previous Funding

1. Air Force Office of Scientific Research, "Aspects of Invariants for Object Recognition," $236,683, 12/01/00 to 11/30/03.

2. National Science Foundation, DMS, "Applications of Mathematical Methods and Scientific Computation to Complex Ecological Problems," Biocomplexity Incubation Activity (with Lima-Filho, Lacher, Pilant and Walton), $96,918, 9/15/00 to 8/31/02.

3. National Science Foundation, DMS, "Geometry, Analysis, and Topology: Research, Technology, Industry, and Education," Group Infrastructure Grant (with Pitts, Boas, Straube, Cao, Lima-Filho, and Thomas), $400,000 (plus $641,928 TAMU matching), 9/1/96 to 8/31/00.

4. National Science Foundation, Directorate for Education and Human Resources (EHR), "A Center for Collaborative Research in Learning Technologies (CRLT) Planning Grant," with Ewing, Pilant, Boggess, Hall, Furuta, and Armstrong, $50,000, 12/1/96 to 7/31/99.

5. National Science Foundation, DMS, "Algebraic Geometry and Computational Algebraic Geometry for Image Database Indexing, Image Recognition, and Computer Vision," Mathematical Sciences University-Industry Postdoctoral Research Fellowships (to support a Postdoctoral researcher), $71,000, 9/1/95 to 1/15/99.

6. David Sarnoff Research Center, Inc., "Algebraic Geometry and Computational Algebraic Geometry for Image Database Indexing, Image Recognition, and Computer Vision," $40,000, 10/1/96 to 1/15/99.

7. David Sarnoff Research Center, Inc., "Algebraic Geometry and Computational Algebraic Geometry for Image Database Indexing, Image Recognition, and Computer Vision," supplemental award $8,000, 9/1/98 to 1/15/99.

8. Air Force Office of Scientific Research, "Geometry and Computational Algebraic Geometry for Image Database Indexing and Image Recognition," $157,000, 7/15/96 to 7/14/99.

9. Texas Advanced Technology Project, "Algorithms for Image Database Indexing, Image Recognition, and Computer Vision," with R. Thomas, $113,628, 1/1/96 to 8/31/98.

10. National Science Foundation, DMS, "Mathematical Sciences Computing Research Environments," SCREMS Grant, with Rundell, Dobson, Thomas, Ewing, Bramble, Lazarov, and Pasciak, $60,000 (with $60,000 TAMU match), 7/1/97 to 6/31/98.

11. National Science Foundation, Directorate for Computer and Information Science and Engineering (CISE), "A Two-Stage Geometric Approach to Planning Robotic Tasks Involving Sliding and Rolling Contacts in Uncertain Environments," with J. Trinkle, $309,000, 8/15/93 to 7/31/97.

12. Texas Advanced Research Project, "Quasistatic Models and Algorithm Design for Dexterous Manipulation Planning," with J. Trinkle, $161,011, 1/1/94 to 8/31/96.

13. Interdisciplinary Research Initiative, TAMU, "Geometry and Optimal Control for Manipulation Planning Algorithms," with J. Trinkle, $25,000, 6/1/95 to 5/31/96.

14. Army Research Office, "Differential Geometric, Stochastic, and Computational Methods for DOD Simulations," $55,000, 8/1/93 to 1/31/95.

15. National Security Agency, "Galois Representations in the Relative deRham Cohomology of Elliptic Surfaces," $27,236, 5/20/92 to 5/19/94.

16. National Science Foundation, DMS, "Mathematical Sciences Research Scientist," SCREMS Grant, with Rundell, Zhou, Pilant, and Chen, $48,695, 8/1/91 to 7/31/94.

17. Battelle, Contract, $30,000, 11/90 - 9/92.

18. ASEE Senior Faculty Fellow - U.S. Navy ASEE Summer Faculty Research Award, 5/90 to 8/90.

19. David Taylor Research Lab Contract, $23,139, 7/90 to 6/91.

20. Army Research Office Grant DAAL 03-88K-0019, $108,909, 1/88 to 3/92.

21. Institute for Advanced Study - Sabbatical Support, $10,000, 8/88 to 6/89.

22. TAMU Faculty Development Leave (held at IAS) 1/89 to 5/89.

23. Eppley Foundation for Scientific Research Grant (held at MSRI) 9/86 to 5/87.

24. Vaughn Foundation Fellowship (held at MSRI) 5/87 to 7/87.

25. Mid-Career Sabbatical Supplement Fellowship (funded by NSF and awarded by the Mathematical Sciences Research Institute, Berkeley, Calif.) held at MSRI, 9/86 to 5/87.

26. Summer Faculty Research and Engineering Program Award, U. S. Army, Ballistic Research Laboratory, Aberdeen Proving Grounds, Aberdeen, MD, 5/86 to 8/86.

27. National Science Foundation Grant DMS-8501724, 7/85 to 5/88.

28. TAMU Faculty Research Grant, Texas A&M, 6/83 to 7/83.

29. NSF-CNRS United States-France Exchange Grant held at Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, France, 6/82 to 6/83.

30. Research Fellowship (awarded by the state government of Nordrhein-Westfalen) held at the Sonderforschungsbereich "Theoretische Mathematik", Universitat Bolin, Bonn, Germany, 1/81 to 12/81.

31. NATO Postdoctoral Fellowship (awarded through NSF) held at the Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, France 8/79 to 7/80.

32. TAMU Faculty Research Grant, Texas A&M, 6/78 to 7/78.

33. National Science Foundation Grant MCS-78-02329, 6/78 to 5/80.

34. National Science Foundation Graduate Fellowship, 9/74 to 8/77.

Miscellaneous Funding Received

1. Mathematical Sciences Research Institute, funding to cover Travel, Lodging, and Meals, to attend events during the Program in Symbolic Computation, 8/98 to 1/99, $4000.

2. National Science Foundation, funding to cover Travel, Lodging, Meals, and Registration, to attend the IAS/Park City Mathematics Institute, Arithmetic Algebraic Geometry, Park City, Utah, June 20 - July 10, 1999.

3. Professional and Career Development Award, TAMU, "GAT Seminar," with P. Lima-Filho, $2200, 1/1/96 to 12/31/98.

4. Burton Scholar, Texas A&M Office of International Programs, $1100, 1994.

5. AMS/NSF ICM Travel Award, $1050, 1994.

6. TAMU Matching Funds for Computer Equipment (SPARC 20), $6000, 1994.

7. ISC Matching funds for Computer Equipment (Power Mac), $5000, 2002.

Postdoctoral Researchers Supported

- Dr. David Stewart, Australian National University, partially supported on my grants with J. Trinkle, 1/1/95 to 6/30/96.

- Dr. Birk Huber, Cornell University, fully supported by my NSF University/Industry grant in conjuction with the David Sarnoff Research Center, Inc. in Princeton, NJ, 6/1/96 to 5/31/98.

Other

- Sponsored numerous Visiting Faculty and Speakers, including in the last five years, Hal Schenck (1997, 1999, 2000) Frank Sottile (1997), Sarah Witherspoon (1997), Mark Huibregtse (visiting professor 1997-98), and Robert Lewis (2000).

- Member American Mathematical Society (AMS).
- Member Association for Computing Machinery (ACM).
- Co-organizer of Confence on Aspects of Algebraic Geometry and Commutative Algebra, TAMU, 5/18-20/00.

Consulting

I have served as a consultant to both private industry and government agencies. This includes work with:

1. System Test and Evaluation White Sands, White Sands Missile Range (splines and wavelets for target motion resolution and radar data processing).
2. U.S. Army Ballistic Research Laboratory (geometric modeling for CAD/CAM, vulnerability analysis, and radar and infrared signatures).
3. U.S. Army Laboratory for Night Vision and Electro-Optics (geometric problems in 3D image generation and automatic target recognition).
4. David Taylor Research Center (geometric aspects of computational fluid dynamics, numerical grid generation, adaptive grids, and scientific visualization).
5. U.S. Army Concepts Analysis Agency (aspects of theater level combat and logistic simulation via the application of differential geometric and stochastic differential equation techniques).
6. Applied Engineering Technology, Inc. (optimal loading schedules, ship hull design, software development, robotic control).
7. French Centre Scientifique et Technique du Batiment (heat flow in buildings).
8. DARPA Hydrodynamics and Hydroacoustics Center (computational geometry, grid generation).
9. Advanced Professor Branch, Signal Process/Computer Systems Technology Division of the Naval Air Development Center (symbolic computation - resultants and Grobner bases, computational algebra - SVD for (spread spectrum) signal processing, non-linear dynamical systems, and wavelets).
10. Litwin Process Automation, Inc. (differential algebraic systems, simultaneous modular and equation based methods for process modeling).
11. Venture Scientific, Inc. (software development - non-uniform rational B-splines (NURBS), wavelets, data compression, scientific visualization).
12. David Sarnoff Research Center, Inc. (geometric invariants for image recognition and indexing image databases for content based retrieval).
13. Naval Air Warfare Center, Aircraft Division, PAX (computer vision, image understanding, virtual reality).
14. Jacobs and Sverdrup Engineering (target recognition algorithms).

Service

I have listed some of the more important service and administrative activities that I have been involved with in the past ten years.

Extra University Service:

- Member, Organizing Committee for the Workshop on Symbolic Computation scheduled for October 12-16, 1998, as part of the Program on Symbolic Computation in Geometry and Analysis, 8/98 to 12/98, at the Mathematical Sciences Research Institute, Berkeley, California.
- National Review Panel - National Defense Science and Engineering Fellowships, Chairman of the Panel in Mathematics, 2/94. General Panel Member on two earlier occasions.

University/College Service

- Associate Director of the Institute for Scientific Computation, 9/1999-present. (Previously served as Assistant Director and before that Mathematics Cluster Coordinator.)
- Director Center for Geometric and Symbolic Computation, 9/96-present.
- Member, Advisory Board of the Cognition and Instructional Technologies Laboratory, College of Education, 9/96 - 5/99.
- Departmental Representative, "One Spirit, One Vision" Development Campaign, 2002 - 2004.
- Member, College of Science Research Enhancement Committee, 1993-1998.
- Member University Electronic Research Administration Advisory Committee, 5/98-5/99.
- Member IT (Information Technology) Working Group.
- Faculty Senate (6 years) including service on the Academic Affairs Committee, the Personnel and Welfare Committee, the Research Committee, and representative to the College of Science Executive Committee.
- Faculty Advisory Council (2 years)
- Member Search Committee for Department Head in Mathematics 1992.

Departmental Service (Mathematics)

- Executive Committee Department of Mathematics 2003 - 2005, 2000 - 2002, 1994 - 1996, and 1991.
- Graduate Studies Committee, 2002 - 2003, and 1992-1997.
- Tenure and Promotion Committee (T) 2000 - 2002, and twice previously.
- Promotion Committee (P) (Chair 2005, Member 2006) 3/2005 to present.

- Chair, Algebra, Number Theory, and Combinatorics Subcommittee (charged with revamping the qualifying exams and course offerings in these areas) 12/2005 to present.
- Post-doctoral Hiring Committee 10/2006 to present, 2002.
- Graduate Student Advisor 1992-1997.
- Miscellaneous Committees and Service, including
  - Mathematical Biology Search Committee, 2000-2001.
  - Applied Mathematics Hiring Committee, 1997 - 1998.
  - Business and Industrial Mathematics Subcommittee 1994-1997.
  - Frontiers Lecture Series Organizing Committee
  - Computer Committee
  - Library Committee
  - Teaching Evaluation Committee
  - Undergraduate Curriculum Committee
  - P&T Document Revision Committee
  - Division Head

Departmental Service (Computer Science)

- Member Tenure and Promotion Committee 1995. (Involved with follow-up work into 1998.)

Reviewing and Refereeing

Reviewer for numerous journals, including recently the:

- Mathematische Zeitschrift
- Proceedings of the American Mathematical Society
- Pacific Journal of Mathematics
- Journal of Number Theory
- Journal of Pure and Applied Algebra
- IEEE Transactions on Robotics and Automation
- Indian Journal of Pure and Applied Mathematics
- Journal of Robotics Systems
- Glasgow Mathematics Journal
- Discrete and Computation Mathematics
- Mathematische Nachricten

Reviewer for Conference Proceedings, including in the last few years

- International Symposium on Effective Methods in Algebraic Geometry, MEGA '96, Eindhoven 1996.
- ICRA International Conference on Robotics and Automation, 1995 and 1996.
- IASTED Proceedings Conference on Modeling, Identification, and Control, 1997.
- IASTED Proceedings International Conference on Applied Informatics, 1998.
- IEEE Transactions on Aerospace and Electronic Systems
- IEEE/ASME Transactions on Mechatronics
- Conference Proceedings Workshop on Algorithms for Robotics, WAFR '98, 1998.

Reviewer "Proposal for a Workshop on Mathematical Aspects of Robotics", International Centre for Mathematical Sciences, Edinburgh, Scotland.

Editorial Book Review, Wallace and West, "Euclidean and Non-Euclidean Geometry" Prentice Hall Publishing- ESM Division, 2001.

Editorial Book Review, Oprea, "Differential Geometry and Its Applications" Prentice Hall Publishing-ESM Division, 2003.

Editorial Book Review, Venema, "Foundations of Geometry" Prentice Hall Publishing-ESM Division, 2003.

Editorial Book Review, Henderson, "Experiencing Geometry" Prentice Hall Publishing-ESM Division, 2004.

Regular reviewer for NSF Division of Mathematical Sciences.

Reviewer for NSF Focused Research Grants, 2003.

Reviewer for NSF Directorate of Computer and Information Science and Engineering.

Reviewer for the Air Force Office of Scientific Research.

Reviewer, Research Grants Council, Hong Kong.

AMS Reviewer - reviewed "Algebraic Curves and Riemann Surfaces," by R. Miranda, for consideration as a publication in the AMS Graduate Studies series (subsequently published), 1994.

Book Reviews for the Bulletin of the AMS.

Reviewer for Math Reviews.

Served as Outside Reviewer in Tenure and Promotion cases 1996, 1997,1998, 2000, 2001, 2003, 2004, 2005, 2006.

Teaching

Funding

- NSF Directorate of Education and Human Resources (EHR), "A Center for Collaborative Research in Learning Technologies (CRLT) Planning Grant," with Ewing, Pilant, Boggess,Hall, Furuta, and Armstrong, $50,000, to develop a proposal for a Center at Texas A&M devoted to researching issues surrounding technology in education, 12/1/96 to 7/31/99.

Regularly Scheduled Classes Taught at Texas A&M since 1994

Spring 1994 Math 689 Algebraic Geometry II
Spring 1994 Math 251 Engineering Mathematics III

Fall 1994 Math 643 Algebraic Topology I

Spring 1995 Math 644 Algebraic Topology II

Fall 1995 Math 407 Complex Variables

Spring 1996 Math 689 Fermat's Last Theorem

Fall 1996 Math 622 Differential Geometry of Curves and Surfaces

Spring 1997 Math 623 Riemannian Geometry

Fall 1997 Math 653 Algebra I

Spring 1998 Math 654 Algebra II
Spring 1998 Math 689 Complex Manifolds

Fall 1998 Math 689 Algebraic Curves and Riemann Surfaces

Spring 1999 Math 662 Seminar in Algebra: Theory of Schemes
Spring 1999 Math 467 Modern Geometry

Fall 1999 Math 666 Geometry of Computer Vision

Spring 2000 Math 467 Modern Geometry
Spring 2000 Math 662 Seminar in Algebra, Elliptic Curves (VIGRE Seminar)

Fall 2000 Math 622 Differential Geometry

Spring 2001 Math 623 Riemannian Geometry
Spring 2001 Math 467 Modern Geometry

Fall 2001 Math 653 Algebra I

Spring 2002 Math 654 Algebra II
Spring 2002 Math 467 Modern Geometry

Fall 2002 Math 643 Algebraic Topology I, 5 students

Spring 2003 Math 467 Modern Geometry, 35 students
Spring 2003 Math 644 Algebraic Topology II, 5 students

Summer II 2003 Math 602 Partial Differential Equations, 21 students

Fall 2003 Math 467 Modern Geometry, 29 students
Fall 2003 Math 650 Complex Manifolds, 5 students

Spring 2004 Math 662 Seminar In Algebra, Shape Theory (VIGRE Seminar), 9 students

Fall 2004 Math 622 Differential Geometry, 17 students
Fall 2004 Math 251-505 Engineering Calculus, 73 students
Fall 2004 Math 251-511 Engineering Calculus, 56 students

Fall 2005 Math 415-500 Modern Algebra I (Honors), 7 students
Fall 2005 Math 467 Modern Geometry, 20 students

Spring 2006 Math 416-200/500 Modern Algebra II (Stacked Honors), 8 students

Fall 2006 Math 251-501 Engineering Calculus, 67 students
Fall 2006 Math 662-602 Seminar in Algebra, Topics in Algebraic Geometry, 10 students

I also have taught 685's and 691's in the summers (including for the Computer Science Department). This includes most recently a 685 Spring 2004 in Morse Theory (2 students), a 685 Summer 2004 in Differential Geometry (1 student), and a 685 Summer 2005 in Algebraic Geometry (1 student). Apart from 685's and 691's, I have not taught in the summers for many years.

In addition to the courses listed above, I've taught many of the undergraduate courses we offer including:

- Math 102 Algebra
- Math 103 Trigonometry
- Math 130 Pre-Calculus
- Math 151 Engineering Calculus I
- Math 166B Topics in Contemporary Mathematics II (linear programming and statistics for business majors)
- Math 221 Several Variable Calculus
- Math 251 Engineering Calculus III
- Math 253 Engineering Calculus III
- Math 302 Discrete Mathematics
- Math 304 Linear Algebra
- Math 308 Differential Equations
- Math 407 Complex Analysis
- Math 415 Modern Algebra I
- Math 444 Topics in Geometry (Geometric Modeling with applications to CAD/CAM)

I have also taught several graduate courses other than those listed above, including:

- Math 601

- Math 602
- Math 629 Mathematics for Managerial, Social and Natural Sciences
- Math 665 An Introduction to Lie Groups and Lie Algebras and the Representation Theory of Compact Lie Groups
- Math 685 Introduction to Complex Manifolds (with applications to String Theory)
- Math 689 Algebraic Geometry I
- Math 689 Algebraic Geometry II

While at LSU I taught Math 2057 Multivariate Calculus and Math 4036 Complex Analysis, both undergraduate courses.

Graduate Student Committees

Ph.D. Students in Mathematics:
Wai Wah Lau (Ph.D. 1998, M.S. awarded 5/92) committee chair
Steve Wilmarth (Ph.D. 1999) committee chair
Sarah Stovall (Ph.D.2001) committee chair
Kevin Abbott (Ph.D.) committee chair - current
Bryan Ko (Ph.D.) committee chair - current

Recent M.S. Students in Mathematics (graduated):
Terry McDonald (M.S. awarded 5/2002) committee chair
Kasthuri Srinivasen (M.S. to be awarded 8/2002) committee chair
Vahagn Minassian (M.S. awarded 8/96) committee chair
Randall Mason (M. S. awarded 5/96) committee chair
Rudy Trijillo (M.S. awarded 8/96) committee chair
Andrew Diener (M.S. awarded 5/1995) committee chair

Outside Mathematics (graduated):
Xianhua Ma (CS, M.S.) committee chair

Other Graduate Student Committees
Robert Main (Ph.D.) committee member
Amir Husain (Ph.D.) committee member - graduated 5/2004
Terry McDonald (Ph.D.) committee member - graduated 5/2006
Marvin Decker (Ph.D.) committee member - graduated 5/2006
Marco Roque-Sol (Ph.D.) committee member - graduated 8/2006
Stefan Tohaneanu (Ph.D.) committee member - current
Jenny G. Fuselier (Ph.D.) committee member - current
James Kimball (Ph.D.) committee member - current
Minjung Seo (Ph.D.) committee member - current
Rob Erby (Ph.D.) committee member - graduated 5/2002
Kasthuri Srinivasan (M.S.) committee chair - graduated 5/2002
Donnie Myers (M.S.) committee member - graduated 2005
Cynthia Mixon (M.S. teaching option - distance program) committee member - graduated 2005

Ilham El-Saleh (M.S. distance program) committee member - graduated 2005
Vincent Lemoine (M.S.) committee member - graduated 8/2003
Terry McDonald (M.S.) committee member - graduated 5/2002
Jody Wilson (M.S.) committee member - graduated 8/2003

Other Graduate Student Committees Outside Mathematics
Brent Dingle (CS, Ph.D., M.S. 12/99 in Math) committee member - current
Chris Anderson (Visualization Science, M.S.) committee member - graduated 5/2003
Yan Wu (CS, M.S. awarded 8/96) committee member
Tejas Shah (EE, M.S. awarded 8/99) committee member
Wookho Son (CS, Ph.D., M.S. awarded 5/96) committee member
Daniel Vallejo-Rodriguez (CS, Ph.D.) committee member
Li Han (CS, Ph.D.) committee member

I have served as a member on many other Ph.D. and M.S. committees in Mathematics, Computer Science, and Electrical Engineering and have served as GCR on a number of occasions.

Other research related work with Graduate Students

In addition to my own students, these are some of the students that were funded on my grants:

- Tanya Leise (Ph.D. student in Mathematics) worked with me for one semester on one of my funded research projects joint with J. Trinkle in Computer Science 1/94-6/94.
- Merrill Heddy (M.B.A. and M.S. student in Statistics, later a student in Math) worked with me on one of my funded research projects 12/93-2/94.
- Sarah Stovall worked with me on a funded research project in computer algebra, 6/96 (later became my student).
- Greg Clark worked with me on a funded research project related to symbolic computation and image understanding, 6/96.
- Vahagn Minassian (M.S. Math) worked on a project related to symbolic computation.
- Brent Dingle (M.S. Math) worked on a project related to symbolic computation.
- Tejas Shah (M.S. EE) worked with me on a funded research project related to computer vision, 1997-1998.
- David Eberle (M.S. Math) worked with me on a research project related to symbolic computation and object recognition.
- Robert Ruffley worked with me on a research project related to object recognition, 2001.
- Jody Wilson is working on a summer project related to computer vision, 2002.
- Jennafer Snodgrass (M. S. student in Mathematics) worked with me on a funded research project related to geometric invariance, shape, and object recognition, 9/2003 to 5/2005. She was supported on my grant.

Other research related work with Undergraduate Students

- Ilya Rostovstev (B.S. student in Mathematics) worked with me 9/2005 to 12/2005 as a JAVA programmer, designing web-based object recognition software.
- Cary Lasher (B.S. student in Mathematics) worked with me for 3 months on one of my funded research projects 6/97 - 8/97.
- James Warren (B.S. student in Mathematics) worked with me for about a year on one of my funded research projects 12/93 - 8/94.
- Victor Haslet (B.S. student in Computer Science). I supervised his senior project in Geometric Modeling.

Graduate Student Advising, Funding, and Recruitment

- I serve as a graduate student advisor in the department and on the Graduate Studies Committee.
- My grants have provided support for several graduate students in mathematics and computer science both during the academic year and in the summers.
- Arranged funding for Sarah Stovall to attend the Mentoring Program for Women in Mathematics at the Institute for Advanced Study, 5/99, and to attend the IAS/Park City Mathematics Institute on Arithmetic Algebraic Geometry in Park City, Utah, 6/20/99 to 7/10/99.
- Recruited graduate student Mark Farag from Stevens Institute of Technology 1994.

Program Development

- I played a leading role in developing the M.S. degree program in Business and Industrial Mathematics.

New Courses Developed and Taught

- Math 444 Topics in Geometry (Geometric Modeling with applications to CAD/CAM)
- Math 665 An Introduction to Lie Groups and Lie Algebras and the Representation Theory of Compact Lie Groups
- Math 685 Introduction to Complex Manifolds (with applications to String Theory)
- Math 689 Algebraic Geometry I and II (1993,1994)
- Math 689 Special Topics in Number Theory - Fermat's Last Theorem (1996)
- Math 689 Complex Manifolds (1998)
- Math 689 Algebraic Curves and Riemann Surfaces (1998)
- Math 662 Seminar in Algebra: Theory of Schemes (1999)

- Math 666 Geometry of Computer Vision (1999)
- Math 662 Seminar in Algebra, Elliptic Curves (VIGRE Seminar) (2000)
- Developed a VIGRE Seminar on Statistical Shape Theory (taught Spring 2004)

Other

- Volunteer Tutor for the Corps of Cadets, Texas A&M, 1978.
- Educational Outreach - arranged for elementary school students to visit Robotics Research Lab in the Computer Science Department.
- Public Relations Activities - College of Science Development Council presentation, TV - Homefront News story on joint research with J. C. Trinkle, and helped with news stories on the GIG grant and the Biocomplexity grant.
- Former Faculty Advisor to MSC Nova (student center organization).
- Attended EEOC training 9/1996.
- Community Service: Brazos Valley Amateur Baseball Association, board member and secretary, and Bryan Viking Baseball Boosters, president.
- Member, Board of Directors, Venture Scientific, Inc.

Also available online at: http://www.math.tamu.edu/∼stiller/vita602.html