Saugata Basu

Department of Mathematics
Purdue University
West Lafayette, IN 49907
ph: (765) 494-8798 (o)   (404) 790-2297 (c)
email: `sbasu@math.purdue.edu`
url: `http://www.math.purdue.edu/∼sbasu`

EDUCATION and EXPERIENCE

Aug 2008 - present	Professor of Mathematics (90% – tenure home) and Professor of Computer Science (10%), Purdue University, West Lafayette.
Mar 2008 - present	Professor of Mathematics (75% – tenure home) and Computer Science (25%), Georgia Institute of Technology, Atlanta (currently on leave).
August 2004 - Feb 2008	Associate Professor of Mathematics (75% – tenure home) and Computer Science (25%), Georgia Institute of Technology, Atlanta.
August 2000 - July 2004	Assistant Professor (tenure-track) of Mathematics (75%) and Computer Science (25%), Georgia Institute of Technology, Atlanta.
July 1998 - August 2000	Assistant Professor, Department of Mathematics, University of Michigan, Ann Arbor.
July 1997 - July 1998	Post-doctoral Fellow at the Mathematical Sciences Department, IBM T.J. Watson Research Center, Yorktown Heights (currently called Goldstine Fellowship).
August 1996 - July 1997	Post-doctoral Fellow at the Mathematical Sciences Research Institute, Berkeley.
September 1991- July 1996	Doctoral Student at the Courant Institute of Mathematical Sciences, New York University. Graduation date: September, 1996. PhD. Thesis: *Algorithms in Semi-Algebraic Geometry.* Advisor: Professor Richard Pollack.
July 1987- May 1991	Bachelor of Technology in Computer Science and Engineering, Indian Institute of Technology, Kharagpur.

VISITING POSITIONS

June, 2009	Visiting Professor, Universite de Rennes I, Rennes, France.
May, 2008	Visiting Professor, Universite de Rennes I, Rennes, France.
April - June, 2007	Visiting Professor, Institute for Mathematics and its Applications, Minneapolis.
February, 2007	Visiting Professor, Universite de Rennes I, Rennes, France.
November, 2005	Visiting Professor, Institute Henri Poincaré, Paris, France.

RESEARCH INTERESTS: Real Algebraic Geometry, Computational Algebra and Geometry, Theoretical Computer Science.

RESEARCH GRANTS:

1. Research proposal titled, "Computing the topology of semi-algebraic sets", awarded the Rackham Graduate School Faculty Fellowship for Research, University of Michigan, Ann Arbor, December, 1998, Amount $10,000.

2. Research proposal titled, "Design and Implementation of Algorithms in Semi-algebraic Geometry," funded by the National Science Foundation, program on Numeric, Symbolic and Geometric Computation. Grant Number 9901947, Amount $ 77,084, 1999 - 2002.

3. Research proposal titled, "CAREER: Algorithmic Semi-Algebraic Geometry and Its Applications", funded by the National Science Foundation, program on Numeric, Symbolic and Geometric Computation, 2002 - 2007. Grant Number CCR-0133597, Estimated Total Award Amount: $333,025.

4. Research proposal titled, "Algorithmic Problems in Semi-algebraic Geometry and Topology," funded by the National Science Foundation, program on Theoretical Foundations (TF), Numeric, Symbolic & Geometric Computation. Grant Number CCF-0634907, Amount $ 229359, 2006 - 2009.

5. Research proposal titled, "Algorithmic and Quantitative Problems in Semi-algebraic and O-minimal Geometry" funded by the National Science Foundation, program on Theoretical Foundations (TF), Grant Number CCF-0915954, Amount $ 300,000, 2009 - 2012.

6. Alfred P. Sloan Foundation Fellowship in Mathematics, 2003-05. Fellowship Amount: $40,000.

HONORS and AWARDS:

Alfred P. Sloan Foundation Fellowship in Mathematics, 2003-05.
Recipient of US National Science Foundation Career Award, 2002-2007.
Rackham Graduate School Faculty Fellowship for Research, University of Michigan, Ann Arbor, December, 1998.
The IBM Mathematical Sciences Post-doctoral Fellowship for the year 1997-98 (one or two fellowships granted every year to outstanding scientists).
The Janet Fabri Memorial Prize for an outstanding dissertation, Courant Institute, May, 1997.
Post-doctoral Fellowship at the Mathematical Sciences Research Institute, Berkeley, 1996-97.
Dean's Dissertation Award, New York University, 1995-96.
The Harold Grad Memorial Prize, awarded for outstanding performance and promise as a graduate student in Mathematics or Computer Science, Courant Institute, April, 1994.
Ranked All India First in the Indian School Certificate Examination, 1987.
Jagadis Bose National Science Talent Search Scholarship, 1987.
National Talent Search Scholarship, awarded by the National Council of Education, Research and Training, Government of India, 1985.

PUBLICATIONS:

1. S. Basu, T. Zell, Polynomial hierarchy, Betti numbers and a real analogue of Toda's theorem, submitted.
   An extended abstract to appear in the Proceedings of the Symposium on Foundations of Computer Science (FOCS), 2009. Available at [arXiv:cs.CC/0812.1200].

2. S. Basu, M. Kettner, Bounding the number of stable homotopy types of a parametrized family of semi-algebraic sets defined by quadratic inequalities, *Proceedings of the London Mathematical Society*, 98:298-324, 2009.

3. S. Basu, D. Pasechnik, M-F. Roy, Bounding the Betti numbers and computing the Euler-Poincaré characteristic of semi-algebraic sets defined by partly quadratic systems of polynomials, accepted for publication in the *Journal of the European Mathematical Society*.
   Available at [arXiv:math.AG/0707.4333].

4. S. Basu, D. Pasechnik, M-F. Roy, Computing the Betti numbers of semi-algebraic sets defined by partly quadratic systems of polynomials, *Journal of Algebra* 321 (2009), pp. 2206-2229.

5. S. Basu, On the number of topological types occurring in a parametrized family of arrangements, *Discrete and Computational Geometry* 40:481-503, 2008.

6. S. Basu, Combinatorial complexity in o-minimal geometry, *Proceedings of the London Mathematical Society* 2009; doi: 10.1112/plms/pdp031.
   Extended abstract appeared in the *Proceedings of the ACM Symposium on the Theory of Computing (STOC)*, 2007.

7. S. Basu, R. Pollack, M.-F. Roy, An asymptotically tight bound on the number of connected components of realizable sign conditions, *Combinatorica* (in press). Available at [arXiv:math.CO/0603256].

8. S. Basu, M. Kettner, A sharper estimate on the Betti numbers of sets defined by quadratic inequalities, *Discrete and Computational Geometry* 39:4, 2008, 734-746.

9. S. Basu, T. Zell, On Projections of Semi-Algebraic Sets Defined by Few Quadratic Inequalities, *Discrete and Computational Geometry*, 39:100-122, 2008.
   (Invited to the twentieth anniversary issue of the journal.)

10. S. Basu, Computing the top few Betti numbers of semi-algebraic sets defined by quadratic inequalities in polynomial time, *Foundations of Computational Mathematics*, vol 8, pp. 45-80, 2008.
    Preliminary version appeared in *Proceedings of ACM Symposium on Theory of Computing (STOC)*, 313-322, 2005.

11. S. Basu, R. Pollack, M.-F. Roy, Computing the first Betti number of semi-algebraic sets, *Foundations of Computational Mathematics*, vol 8, pp. 97-136, 2008.
    Preliminary version appeared in *Proceedings of ACM Symposium on Theory of Computing (STOC)*, 304-312,2005.

12. S. Basu, N. Bhatnagar, P. Gopalan, R. Lipton, Polynomials that sign represent parity and Descartes' rule of signs, *Computational Complexity*, 17 (2008) 377-406.
    Preliminary version appeared in the *Proceedings of the 19th IEEE Conference on Computational Complexity,* 2004, 223-235.

13. S. Basu, N. Vorobjov, On the number of homotopy types of fibres of a definable map, *Journal of the London Mathematical Society*, Vol 76, 757-776, 2007.

14. S. Basu, Computing the first few Betti numbers of semi-algebraic sets in single exponential time, *Journal of Symbolic Computation*, 41 (2006), 1125-1154.

15. S. Basu, Efficient algorithm for computing the Euler-Poincaré characteristic of semi-algebraic sets defined by few quadratic inequalities, *Computational Complexity*, 15 (2006), 236-251.

16. S. Basu, R. Pollack, M.-F. Roy, On the Betti numbers of sign conditions, *Proc. Amer. Math. Soc.* 133 (2005), 965-974.

17. S. Basu, R. Pollack, M.-F. Roy, Computing the Euler-Poincaré Characteristic of Sign Conditions, *Computational Complexity*, 14 (2005) 53-71.

18. S. Basu, M. Kettner, Computing the Betti numbers of arrangements in practice, Proceedings of the 8-th International Workshop on Computer Algebra in Scientific Computing (CASC, 2005), *Lecture Notes in Computer Science*, Vol. 3718, 13-31.

19. S. Basu, R. Dhandapani, R. Pollack, On the realizable weaving patterns of polynomial curves in $\mathbb{R}^3$, (*Proceedings of Graph Drawing, 2004*) *Lecture Notes in Computer Science*, Vol. 3383, Feb 2005, 36 - 42.

20. S. Basu R. Pollack M.-F. Roy, Computing the Dimension of a Semi-Algebraic Set, *Zap. Nauchn. Semin. POMI 316*, 42-54 (2004).

21. S. Basu, Computing Betti Numbers of Arrangements via Spectral Sequences, *Journal of Computer and System Sciences*, 67 (2003) 244-262.
Preliminary version appeared in *Proceedings of the Symposium on Theory of Computing (STOC)*, 2002.

22. S. Basu, Different bounds for the different Betti numbers of semi-algebraic sets, *Discrete and Computational Geometry*, 30:1, 65-85, 2003.
Preliminary version appeared in *Proceedings of the ACM Symposium on Computational Geometry (SoCG)*, 2001.

23. S. Basu, On the combinatorial and topological complexity of a single cell, *Discrete and Computational Geometry*, 29:41-59, 2003.
Preliminary version appeared in *Proceedings of the 39th IEEE Symposium on Foundations of Computer Science (FOCS)*, 1998.

24. S. Basu, R. Pollack, M.-F. Roy, Computing Roadmaps of Semi-algebraic Sets on a Variety, *Journal of the American Mathematical Society* 13 (2000), 55-82.
Preliminary version appeared in the *Proceedings of the 28th Annual ACM Symposium on Theory of Computing (STOC)*, 1996.

25. S. Basu, On Bounding the Betti Numbers and Computing the Euler Characteristic of Semi-algebraic Sets, *Discrete and Computational Geometry*, 22:1-18, 1999.
Preliminary version appeared in *Proceedings of the 28th Annual ACM Symposium on Theory of Computing (STOC)*, 1996.

26. S. Basu, New Results on Quantifier Elimination over Real Closed Fields and Applications to Constraint Databases, *Journal of the ACM*, July 1999, Vol 46, No 4. Preliminary version appeared in *Proceedings of the 38th IEEE Symposium on Foundations of Computer Science (FOCS)*, 1997.

27. S. Basu, R. Pollack, M.-F. Roy, On Computing a Set of Points meeting every Semi-algebraically Connected Component of a Family of Polynomials on a Variety, *Journal of Complexity*, March 1997, Vol 13, Number 1, 28-37.

28. S. Basu, R. Pollack, M.-F. Roy, On the Combinatorial and Algebraic Complexity of Quantifier Elimination, *Journal of the ACM*, Nov 1996, Vol 43, Number 6, 1002-1046.
    Preliminary version appeared in *Proceedings of the 35th IEEE Symposium on Foundations of Computer Science (FOCS)*, 1994.

29. S. Basu, R. Pollack, M.-F. Roy, Computing Roadmaps of Semi-algebraic Sets on a Variety (extended abstract), *Proceedings of the First Conference on the Foundations of Computational Mathematics, F. Cucker, M. Shub Eds., Springer-Verlag, 1997.*

30. S. Basu, Uniform Quantifier Elimination and Constraint Query Processing, *Proceedings of the International Symposium on Symbolic and Algebraic Computation (ISSAC), 1997.*

31. S. Basu, R. Pollack, M.-F. Roy, On the number of cells defined by a family of polynomials on a variety, *Mathematika*, 43 (1996) 120-126.

32. S. Basu, R. Pollack, M.-F. Roy, Computing Semi-algebraic Description of the Connected Components of Semi-algebraic Sets, *Proceedings of the International Symposium on Symbolic and Algebraic Computation (ISSAC), 1998.*

33. D. Roy Chowdhury, S. Basu, I. Sengupta, P. Pal Chaudhuri, Design of CAECC – Cellular Automata Based Error Correcting Code, IEEE Transactions on Computers, Vol. 43, Number 6, 1994.

BOOK CHAPTERS:

1. S. Basu, Algorithmic Semi-algebraic Geometry and Topology – Recent Progress and Open Problems (expository article, 75 pages), *Surveys on Discrete and Computational Geometry: Twenty Years Later*, Eds. J.E. Goodman, J. Pach, R. Pollack. Contemporary Mathematics, Volume: 453. American Mathematical Society 2008.
   Available at [arXiv:math.AG/0708.2854].

2. S. Basu, A. Holmsen, J.E. Goodman, and R. Pollack, The Hadwiger transversal theorem for pseudolines, *Current Trends in Combinatorial and Computational Geometry: Papers from the Special Program at MSRI*, MSRI Publications Volume 52, Cambridge University Press 2005, 79-85.

3. S. Basu, R. Pollack, M.-F. Roy, Betti Number Bounds, Applications and Algorithms, *Current Trends in Combinatorial and Computational Geometry: Papers from the Special Program at MSRI*, MSRI Publications Volume 52, Cambridge University Press 2005, 87-97.

4. S. Basu, R. Pollack, M.-F. Roy, A New Algorithm to find a point in every cell defined by a family of polynomials, in *Quantifier Elimination and Cylindrical Algebraic Decomposition,* B. Caviness and J. Johnson Eds., Springer-Verlag.

5. S. Basu, R. Pollack, M.-F. Roy, Computing a set of points meeting every cell defined by a family of polynomials on a variety, in *Algorithmic Foundations of Robotics*, K.Y. Goldberg, D. Halperin, J.-C. Latombe, R.H. Wilson, Eds., A.K. Peters, Boston, 1994.

BOOKS:

- S. Basu, R. Pollack, M.-F. Roy, *Algorithms in Real Algebraic Geometry.* Series: Algorithms and Computation in Mathematics, Vol 10. ISBN 3-540-00973-6, 602 pp, Springer-Verlag (2003).
- S. Basu, R. Pollack, M.-F. Roy, *Algorithms in Real Algebraic Geometry, Second Edition.* Series: Algorithms and Computation in Mathematics, Vol 10. ISBN-10 3-540-33098-4, 662 pp, Springer-Verlag (2006).
- S. Basu, D. Pasechnik, M.-F. Roy, Algorithms in Real Algebraic Geometry, Vol II. Under preparation.

BOOKS EDITED:

1. B. Aronov, S. Basu, J. Pach, M. Sharir (Eds), *Discrete and Computational Geometry, The Goodman-Pollack Festschrift.* Series: Algorithms and Combinatorics, Vol 25. ISBN 3-540-00371-1, 853 pp, Springer-Verlag (2003).
2. S.Basu, L. Gonzalez-Vega (Eds), *Algorithmic and Quantitative Real Algebraic Geometry.* DIMACS Series in Discrete Mathematics and Theoretical Computer Science, Vol 60. ISBN: 0-8218-2863-0, 219 pp, American Mathematical Society (2003).

INVITED TALKS:

1. *PoSSo Open Workshop on Applications of PoSSo and Real Solving,* Iraklio, Greece, June 7-10, 1995.
2. *AMS-SIAM Summer Seminar on Mathematics of numerical analysis: Real number Algorithms,* Park City, Utah, July 6 - 11, 1995.
3. *Dagstuhl Seminar on Real Computation and Complexity*, Germany, Nov 6-10, 1995.
4. *Geometry Seminar* at the Courant Institute, March 26, 1996.
5. *Special Session on Real Algebraic Geometry and Ordered Algebraic Structures,* at the AMS meeting held at Baton Rouge, Louisiana, April 17-21, 1996.
6. *AMS-IMS-SIAM Joint Summer Research Conference on Discrete and Computational Geometry,* Mount Holyoke College, July 13-19, 1996.
7. *Special Session on Discrete and Combinatorial Geometry,* Fall Eastern Sectional Meeting of the AMS, Lawrenceville, NJ , October 5-6, 1996.
8. *Discrete Mathematics Seminar,* Department of Mathematics, University of California, Berkeley, Oct 28, 1996.

9. *Special Session on Algorithms in Real Algebraic Geometry,* at the AMS meeting held at College Park, Maryland, April 12-14, 1997.

10. *IBM Mathematical Sciences Seminar,* Sept 15, 1997.

11. *Special Session on Concrete Aspects of Real Polynomials,* at the AMS meeting held at Atlanta, Georgia, Oct 17-19, 1997.

12. *Real Algebraic Geometry Seminar*, Universite de Rennes, March 27, 1998.

13. *Dagstuhl Seminar on Real Computation and Complexity*, Germany, June 15-19, 1998.

14. *Combinatorics Seminar*, University of Michigan, Ann Arbor, Oct 20, 1998.

15. *Geometry Seminar*, Courant Institute, Feb 16, 1999.

16. *Computer Algebra Seminar*, Universite de Rennes, May 14, 1999.

17. Invited one hour lecture at the *International Conference on Discrete and Computational Geometry*, Ascona, Switzerland, June 27 - Jul 2, 1999.

17. *Foundations of Computational Mathematics Conference in Oxford, Workshop on Complexity Theory, Real Machines and Homotopy* July 18-27, 1999.

18. Mini-course on algebraic curves and codes at the *Workshop on Theoretical Computer Science, Indian Institute of Science, Bangalore,* June 13-21, 2000.

19. *Geometry Seminar*, Courant Institute, March 6, 2001.

20. Invited one hour lecture at the *DIMACS Workshop on Quantitative Aspects of Real Algebraic Geometry*, DIMACS, News Brunswick, March 12 - 16, 2001.

21. *Conference on Real Algebraic and Analytic Geometry*, Rennes, France, June 11 - 15, 2001.

22. *Geometry and Topology Seminar*, University of Georgia, Athens, Nov 12, 2001.

23. *Applied Mathematics Colloquium*, University of Maryland, Baltimore County, Nov 16, 2001.

24. *Special Session on Computational Topology*, American Mathematical Society annual meeting in San Diego, Jan 8, 2002.

25. Invited lecture at the *CBMS Conference on Solving Polynomial Systems*, College Station, Texas, May 21-24, 2002.

26. Research Seminar at the Research Institute for Symbolic Computation, Linz, Austria, June 4, 2002.

27. *Workshop on Computations in Real Algebraic Geometry and Applications*, Facultad de Ciencias, Universidad de Cantabria, Santander, Spain, June 13-15, 2002.

28. *Seminaire de Calcul formel et Complexite*, Institut de Recherche Mathmatique de Rennes, June 21, 2002.

29. *Foundations of Computational Mathematics Conference, Workshop on Complexity Theory*, Minneapolis, Aug 12-14, 2002.

30. *Special Session on Quantitative Results in Real Algebra and Geometry, First Joint Meeting between the RSME and the AMS,* Seville, Spain, June 18-21, 2003.

31. Invited one-hour talk at the Conference on *Algebraic Topological Methods in Computer Science II,* University of Western Ontario, Canada, July 15-21, 2004.

32. Seminar at the Department of Computer Science and Engineering, Indian Institute of Technology, Kharagpur, Aug 26, 2004.

33. Colloquium talk at the Department of Mathematics, University of Illinois, Urbana-Champaign, Sept 16, 2004.

34. *Computational Geometry Seminar* at the Department of Computer Science, University of Illinois, Urbana-Champaign, Sept 17, 2004.

35. *Seminaire de Calcul formel et Complexite*, Institut de Recherche Mathmatique de Rennes, Nov 5, 2004.

36. *AMS Sectional Meeting, Special Session on Real Algebraic Geometry,* Lubbock, Texas, April 9, 2005.

37. *Geometry Seminar*, Texas A& M University, College Station, Texas, April 11, 2005.

38. *Effective Methods in Algebraic Geometry* (MEGA), Alghero, Sardinia, May 25-June 2, 2005.

39. *Workshop on Algorithms in Real Algebraic Geometry and Applications*, (three one-hour lectures), Ouessant, France, June 24-28, 2005.

40. *Foundations of Computational Mathematics* (FOCM, 2005) Workshop on Real Number Complexity, Santander, Spain, July 7-9, 2005.

41. *Fourth Annual Network Meeting - Real Algebraic and Analytic Geometry* (RAAG-2005), Universitat Passau, Germany, September 5 - 9, 2005 (one hour invited lecture).

42. *DIMACS Theoretical Computer Science Seminar*, Rutgers University, Oct 11, 2005.

43. Invited one hour lecture at workshop on *Real Algebra, Quadratic Forms and Model Theory; Algorithms and Applications* Paris, November 2-9, 2005.

44. *Mini-course on Algorithms in Real Algebraic Geometry* (5/15 lectures) (co-taught with Marie-Francoise Roy and Fabrice Rouillier), Trimester on Real Geometry, at Institute Henri Poincaré, Paris, Nov 1-30, 2005.

45. *Mini-course on Efficient Algorithms for Computing Betti Numbers of Semi-Algebraic Sets* (4 lectures), Trimester on Real Geometry at Institute Henri Poincaré, Paris, Nov 1-30, 2005.

46. Mathematics Colloquium, University of Paderborn, Germany, Nov 22, 2005.

47. Invited one hour speaker at the 2006 AMS-IMS-SIAM Summer Research Conference on *Discrete and Computational Geometry – Twenty Years Later*, Snowbird, Utah, June 18-23, 2006.

48. Talk at *Oberwolfach Workshop on Geometric and Topological Combinatorics*, Jan 28 - Feb 3, 2007.

49. One hour Seminar talk in *Seminaire Geometrie Algebrique Reele*, Universite de Rennes I, Feb 16, 2007.

50. *IMA Algebraic Geometry Seminar*, Minneapolis, April 11, 2007.

51. One hour plenary talk at *Workshop on Complexity, Coding, and Communications*, IMA Special year on Applicable Algebraic Geometry, Minneapolis, April 16-20, 2007.

52. *Mathematics Colloquium*, Purdue University, September 18, 2007.

53. *Working Algebraic Geometry Seminar*, Purdue University, Spetember 19, 2007.

54. *Geometry Seminar*, Courant Institute, Mar 18, 2008.

55. Invited talk at the *Workshop on Enumeration and Bounds in Real Algebraic Geometry*, Bernoulli Center, EPFL, Lausanne, April 19-25, 2008.

56. Invited talk at the Conference honoring Andrei Gabrielov on *Effective Real Analytic Geometry*, ICMS, Edinburgh May 5-9, 2008.

57. Invited talk at the *AMS Special Session on Applicable Algebraic Geometry*, Vancouver, Oct 4-5, 2008.

58. *Algebra, Geometry and Combinatorics Seminar*, Department of Mathematics, University of Illinois, Urbana-Champaign, Oct 29, 2008.

59. Colloquium talk at the Indian Institute of Technology, Kharagpur, Jan 13, 2009.

60. Geometry Seminar, Courant Institute, Feb 24, 2009.

61. Invited talk at the *AMS Special Session on Concrete Aspects of Real Positive Polynomials*, Urbana-Champaign, Mar 27-29, 2009.

62. ACO Seminar, Georgia Tech, April 10, 2009.

REFEREED CONFERENCE PRESENTATIONS:

1. *39th Annual ACM Symposium on Theory of Computing*, San Diego, June 11- 13, 2007.

2. *37th Annual ACM Symposium on Theory of Computing*, Baltimore, May 22-24, 2005 (two talks).
3. *Effective Methods in Algebraic Geometry*, Alghero, Sardinia, May 25-June 02, 2005.
4. *34th ACM Symposium on Theory of Computing* Montreal, Quebec, Canada, May 19-21, 2002.
5. *ACM Symposium on Computational Geometry,* Medford, Massachusetts, June3-5, 2001.
6. *39th IEEE Symposium on Foundations of Computer Science,* Palo Alto, California, Nov 8 -11, 1998.
7. *38th IEEE Symposium on Foundations of Computer Science*, Miami Beach, Florida, Oct 20-22,1997.
8. *International Symposium on Symbolic and Algebraic Computation* , Maui, Hawaii, July 20-22, 1997.
9. *28th Annual ACM Symposium on Theory of Computing*, Philadelphia, May 22-24, 1996 (two talks).

PHD Students:

- Michael Kettner. School of Mathematics, Georgia Tech. Defended his thesis titled *Algorithmic and Topological Aspects of Semi-algebraic Sets Defined by Quadratic Inequalities*, Fall 2007.
- Sal Barone. Department of Mathematics, Purdue University (current).

Post-doctoral Fellows Supervised:

- Thierry Zell (2004-6). Now at Department of Mathematics, Lenoir-Rhyne University.
- Peter Scheiblechner, Department of Mathematics, Purdue University (current).

Doctoral Committees:

- Nisheeth Vishnoi (Georgia Tech), Parikshit Gopalan (Georgia Tech), Lionel Alberti (Nice).

JOURNAL REFEREE:

Journal of the American Mathematical Scociety
Journal of Symbolic Computation
Journal of the London Mathematical Society
Discrete and Computational Geometry
Applicable Algebra in Engineering, Communication and Computing
Computational Geometry – Theory and Applications
Theoretical Computer Science
Journal of Computer and System Sciences
Journal of Algorithms
Journal of Pure and Applied Algebra
SIAM Journal on Computing
Computational Complexity
Journal of the Canadian Mathematical Society

TEACHING EXPERIENCE:

Graduate Commutative Algebra, Purdue University, Fall 2008 (10 students).
Undergraduate Linear Algebra, Purdue University, Fall 2008 (40 students).
Graduate Algebra II, Georgia Tech, Spring 2008 (6 students).
Graduate Algebra I, Georgia Tech, Fall 2007 (24 students).
Undergraduate Abstract Algebra I, Georgia Tech, Fall 2007 (15 students).
Graduate Algebraic Geometry, Georgia Tech, Fall 2006 (5 students).
CS Undergraduate Design and Analysis of Algorithms, Georgia Tech, Fall 2006 (35 students).
Calculus II, Georgia Tech, Spring 2006 (45 students).
Graduate Complex Analysis, Georgia Tech, Spring 2004 (10 students).
Graduate Computability and Algorithms, Georgia Tech, Spring 2004 (35 students).
Graduate Algebra I, Georgia Tech, Fall 2003 (28 students).
Graduate Algebraic Topology II, Georgia Tech, Spring 2003 (5 students).
Algorithms in Real Algebraic Geometry (Special Topics), Spring 2003 (5 students).
Graduate Algebra II, Georgia Tech, Spring 2002 (6 students).
Graduate Algebra I, Georgia Tech, Fall 2001 (24 students).
CS Introduction to Proofs (58 students), Georgia Tech, Fall, 2001.
Graduate Algebra I (12 students) and II (8 students), Georgia Tech, 2000-2001.
Calculus I and II, 1998 and 1999, University of Michigan.

OTHER PROFESSIONAL ACTIVITY:

1. Co-organizer of Michigan Interdisciplinary Mathematics Meeting II on Algorithms, Optimization and Control, Ann Arbor, MI, May 6-8,1999.

2. Co-editor (with Laureano Gonzalez-Vega) of the book Algorithmic and Quantitative Real Algebraic Geometry, American Mathematical Society, DIMACS, Series in Discrete Mathematics and Theoretical Computer Science, ISSN: 1052-1798, Volume: 60.

3. Co-editor (with J. Pach, M. Sharir, B. Aronov) of Festschrift volume honoring Eli Goodman and Ricky Pollack, 2003.

4. Panelist on an NSF-CCR panel for evaluating NSF grant proposals (Feb, 2003).

5. Co-organizer of AMS Special Session on Algorithmic Algebraic and Analytic Geometry, AMS-MAA Joint Mathematics Meeting, Atlanta, GA, Jan 5-8, 2005.

6. Co-organizer of AMS-ASL Special Session on Logical Methods in Computational Mathematics, AMS-MAA Joint Mathematics Meeting, New Orleans, LA, Jan 5-8, 2007.

7. Co-organizer of Special Quarter on Non-linear Computational Geometry, Institute for Mathematics and its Applications, Minneapolis, May 13 - June 22, 2007.

8. Co-organizer (with Marie-Francoise Roy, Frank Sottile, Monique Laurent) of Oberwolfach Seminar on "New Trends in Algorithms for Real Algebraic Geometry", Nov 22-28, 2009.