

Salvador P. Barone

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Education

Ph.D. Mathematics, Purdue University, 2013. Advisor: Dr. Saugata Basu.

M.A. Mathematics, Bowling Green State University, 2006.

B.S. Mathematics, Bowling Green State University, 2004.

Employment

2021–current	Georgia Institute of Technology Senior Academic Professional and Director of Communications for the School of Mathematics (DoCSOM)
2017–2021	Georgia Institute of Technology Academic Professional and Director of Communications for the School of Mathematics (DoCSOM)
2013–2017	Georgia Institute of Technology Visiting Assistant Professor Hale Post-doctoral fellow
2006–2013	Purdue University Bisland Dissertation Fellowship, June 2012 - May 2013 Research Assistant, June 2009 - May 2012 Teaching Assistant, August 2006 - May 2019
2004–2006	Bowling Green State University Teaching Assistant

Teaching experience

Georgia Institute of Technology (2013 - current):

Course Coordinator for Math 1554 Linear Algebra, 2019 - present. Coordinated TAs and common exams for 1,200+ students in Fall and 700+ students in Spring every year, and provided course resources such as syllabus, schedule, lecture notes, homework sets, and created the Canvas page for all sections every semester.

Lecturer for most first year classes: Calc I, Calc II, Finite Mathematics, Intro. Prob & Stat, and Linear and Finite Mathematics, Linear Algebra, Pre-calculus. Class size: 60-120 Fall/Spring, 25-30 Summer including SOUP online classes.

Designed each course: created syllabus as well as content including all exams, quizzes, and online homework. HTML course websites also contain downloadable practice material and full solutions.

Managed up to 30 TAs simultaneously, providing them with recitation content, course policy guidelines, as well as organized grading and directed management of student issues.

Utilized online resources Piazza, MyLab, WeBWorK, ALEKS, created MATLAB content as well as HTML course websites and interactive GeoGebra labs, and maintained a readily available online presence especially for the online classes answering questions.

Purdue University (2006 - 2013):

Lecturer: Business Calculus, Calculus for Life Sciences, Linear Algebra, and Intro Prob & Stat. Additionally gave recitation for Calc I & II, and College algebra. Class size: 35 students.

Bowling Green State University (2004 - 2006): Lecturer: College Algebra, Intro Prob & Stat, and Calc I. Class size: 35 students.

Director of Communications for the School of Mathematics (DoCSOM)

I am the content manager and oversight for all School of Mathematics web content, including the SoM social media presence (currently Facebook only), including news and events, digital and physical poster content/creation/printing/distribution, webpage content for SoM associated webpages including conference webpages/REU/GTMAP/and others. I also manage the internal website for faculty use, various online forms for internal and external use (application forms, schedule request, visitor forms, etc.), and am an admin for several email lists for various faculty groups. I also serve as a faculty interface facilitator for the CoS web development team as well as a CoS dev team liaison for faculty in SoM; in particular I am involved in the periodic updating of the web framework: acting as a facilitator between faculty and the development team. I also create the yearly SoM periodical *The ProofReader* whose audience is alumni and friends of the School of Mathematics, intended to promote and highlight the various goings on in the school.

Special honors and diversity experience

I created the math portion of the SABIC Foundation Year Program at the Language Institute at Tech, where I designed and taught Calc I, Calc II, and Pre-calculus 8-week courses for the Language Institute at the Georgia Institute of Technology for two cohorts in 18 month programs. The program's goal is to prepare 14 Saudi Arabian high school graduates for a top-tier undergraduate program in engineering. The program focuses on language communication skills, study skills, test preparation and content courses in math, chemistry, computer programming, and physics as well as SAT and college application guidance. I ran the math program for SABIC from inception at Tech in 2016 until 2018. We utilized MyLab and ALEKS online software, interactive computer labs using GeoGebra, as well as traditional math classrooms. I continue to serve as a mentor for the current instructor.

Honors and awards

Bilsland Dissertation Fellowship (BDF), 2012-2013.

Teaching awards

Committee for the Education of Teaching Assistants "Excellence in Teaching Award", Purdue University, April 2012.

Department of Mathematics Excellence in Teaching Award, Purdue University, November 2011.

Title of Outstanding Graduate Instructor, Purdue Department of Mathematics, 2006 - 2013.

Publications

On the homotopy types of limits of semi-algebraic sets and additive complexity of polynomials (with S. Basu), J. Eur. Math. Soc., Vol 16, 1527-1554, 2014.

Some Quantitative Results in Real Algebraic Geometry, arXiv preprint arXiv:1234.5678 [math.AG], 2013.

On a real analogue of Bezout inequality and the number of connected of connected components of sign conditions (with S. Basu), Proc. London Math. Soc., (3) 112 (2016), no. 1, 115-145.

Refined bounds on the number of connected components of sign conditions on a variety (with S. Basu), Discrete and Comput. Geom., 47:577-597, 2012.

Invited talks

Dagstuhl Seminar: Complexity of Symbolic and Numerical Problems, Schloss Dagstuhl, Germany 7 - 12 June, 2015.

FoCM 2014, Universidad de la República in Montevideo, Uruguay 11 - 20 December, 2014.

Algebraic Techniques for Combinatorial and Computational Geometry: Tools from Algebraic Geometry, IPAM at UCLA, April 2014.

Algebra Seminar, Georgia Institute of Technology, September 2013.

SIAM AG13, Algorithms in Real Algebraic Geometry and its Applications (Part III), 3 August 2013.

Real Algebraic Geometry Mini-conference, Purdue University, December 2012.

Student Colloquium, Purdue University, October 2012.

Real Algebraic Geometry Conference, Universite de Rennes, France, June 2011.

Student Commutative Algebra Seminar, Purdue University, March 2010.

Bridge to Research Seminar, Purdue University, February 2010.

Service

Faculty Advisory Committee (FAC), member, 2024 - present

DEI Committee, member, 2023 - present

Academic Faculty Advisory Committee, member, 2022 - 2024

Communications, Development, and Outreach Committee (CDO), co-chair, 2017 - present

Co-Founder and Organizer, Georgia Tech Postdoctoral Association, Georgia Institute of Technology, October 2013 - March 2014

Organizer of the Algebra Seminar, Georgia Institute of Technology, August 2013 - 2014.

Graduate student representative, Purdue University, Fall 2008 - Spring 2009.

Conferences attended

Joint Mathematics Meetings, San Antonio, Texas 10-13 January 2015.

Algebraic Techniques for Combinatorial and Computational Geometry: Tools from Algebraic Geometry, IPAM at UCLA, 7-11 April, 2014.

Joint Mathematics Meetings Short Course on Geometry and Topology in Statistical Inference, Baltimore, MD, 13-14 January 2014.

AlgeCom9, Loyola University, Chicago, IL, November 9, 2013.

SIAM Conference on Applied Algebraic Geometry, Colorado State University, Fort Collins, CO 1-4 August 2013.

Joint Mathematics Meetings, San Diego, CA 9 - 12 January 2013.

Algebraic Geometry for Applications, IMA PI Summer Program for Graduate students, Georgia Institute of Technology, Atlanta, GA June 18 - July 6 2012.

Real-number complexity FoCM'11 Budapest, Hungary 4-6 July 2011.

Real Algebraic Geometry , Universite de Rennes 1, 20 - 24 June 2011.

Oberwolfach Seminar on "New Trends in Algorithms for Real Algebraic Geometry", Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany 22 - 28 November 2009.

References

PhD Advisor: Saugata Basu, Purdue University. email: sbasu@math.purdue.edu

Andrei Gabrielov, Purdue University. email: agabriel@math.purdue.edu

Marie-François Roy, Université de Rennes 1. email: marie-francoise@univ-rennes1.fr

Mohab Safey El Din, Universite Pierre et Marie Curie. email: Mohab.Safey_El_Din@inria.fr

Nicolai Vorobjov, University of Bath. email: nnv@cs.bath.ac.uk

Greg Blekherman, Georgia Institute of Technology. email: greg@math.gatech.edu

Doug Ulmer, Georgia Institute of Technology. email: douglas.ulmer@math.gatech.edu

Xingxing Yu, Georgia Institute of Technology. email: yu@math.gatech.edu

Karen Tucker, Georgia Institute of Technology (Language Institute). email: Karen.Tucker@pe.gatech.edu

Klara Grodzinski, Georgia Institute of Technology. email: klarag@math.gatech.edu

Prasad Tetali, Georgia Institute of Technology. email: tetali@math.gatech.edu