Alperen Ali Ergür

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	Mathematics Department	**Email**	alperen.ergur@utsa.edu
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Education

2016	PhD in Mathematics - *Texas A&M University, USA*
	Advisors: Grigoris Paouris and J. Maurice Rojas
2011	MS in Mathematics- *Tobb University, Turkey*
2009	BS in Mathematics- *Bilkent University, Turkey*

Employment

Aug 2020-present	University of Texas at San Antonio	
	Assistant Professor	
	Mathematics Department	
Sep 2019-Aug 2020	Carnegie Mellon University, Theoretical Computer Science Group	
	Postdoctoral Fellow	
	Mentors: Venkatesan Guruswami and Pravesh Kothari	
May 2017-Aug 2019	Technical University of Berlin, Algorithmic Algebra Group	
	Einstein Postdoctoral Fellow	
	Mentors: Peter Bürgisser and Felipe Cucker	
Aug 2016-May 2017	North Carolina State University, Symbolic Computation Group	
	Postdoctoral Research Scholar	
	Mentor: Cynthia Vinzant	
Sep 2011-Aug 2016	Texas A&M University, Functional Analysis and Algebraic Geometry Groups	
	Graduate Research/Teaching Assistant	
	Assistant Instructor at Research Experience for Undergraduates Program	

Teaching Experience

1. University of Texas at San Antonio

   Linear Algebra, Probability and Computing

2. Technische Universität Berlin

   Seminar on Interior Point Methods in Convex Optimization (co-teaching with T. de Wolff)

   Effective Algebraic Geometry Lectures (co-teaching with P. Bürgisser and J. Tonelli-Cueto)

3. NC State University

   Instructor for the following courses:

   Linear Algebra for Science Majors, Calculus for Engineers, Precalculus

4. Texas A&M University

   Assistant Instructor at Research Experience for Undergraduates Program

   Mentored eight undergraduate research projects in four summers: 2013-2016.

   Recitation Leader for Graduate Algebra, Probability, Advanced Calculus, Calculus

Research Visits

April 2019 Sorbonne University, Paris, Host: Elias Tsigaridas

Nov 2018 Goethe Universität Frankfurt Am Main, Host: Amin Coja-Oghlan

Oct 2018 University of Missiouri, Columbia, Host: Petros Valettas

April 2017 University of Michigan, Ann Arbor, Host: Alexander Barvinok

Mar 2016 Middle East Technical University, Host: Özgür Kişisel

Oct 2015 Technische Universität München, Host: Peter Gritzmann

Sept 2015 University of Athens, Host: Apostolos Giannopoulos

Grants, Awards, etc

Jan 2017 Postdoctoral Fellowship by Einstein Foundation

Jun 2015 Travel Grants by University of Trento and Institut Henri Poincare

April 2014 AMS Travel Grant for Graduate Students

Sept 2009 Full Scholarship by Tobb University including tuition and stipend

Sept 2004 Full Scholarship by Bilkent University including tuition and stipend

< 2004 Two Bronze, One Silver Medal in National Math Contest

Research Interest

Discrete and Convex Geometry, Real Algebraic Geometry, Optimization,
Randomized Numerical Analysis, Theory of Computation

Publications and Preprints

Articles listed below are available at `https://arxiv.org/a/ergur_a_1.html`

1. Multihomogenous Nonnegative Polynomials and Sums of Squares
   Discrete and Computational Geometry, 2018
   `https://doi.org/10.1007/s00454-018-0011-3`

2. Probabilistic Condition Number Estimates for Real Polynomials I
   (with G. Paouris and J.M. Rojas)
   Foundations of Computational Mathematics, 2018
   `https://doi.org/10.1007/s10208-018-9380-5`

3. Approximating Nonnegative Polynomials via Spectral Sparsification
   SIAM Journal on Optimization, 2019
   `https://doi.org/10.1137/17M1121743`

4. Tropical Varieties for Exponential Sums (with G. Paouris and J.M. Rojas)
   Mathematische Annalen, 2019
   `https://doi.org/10.1007/s00208-019-01808-5`

5. On the Expected Number of Zeros of Random Fewnomials
   (with P. Bürgisser and J. Tonelli-Cueto)
   SIAM Journal on Applied Algebra and Geometry (SIAGA), 2019
   `https://doi.org/10.1137/18M1228682`

6. Probabilistic Condition Number Estimates for Real Polynomials II:
   Structure and Smoothed Analysis (with G.Paouris and J.M Rojas)
   Minor Revision, Mathematics of Computation

7. Plantinga-Vegter Algorithm Takes Average Polynomial Time
   (with F. Cucker and J. Tonelli-Cueto)
   ACM Symposium on Symbolic and Algebraic Computation (ISSAC), 2019
   `https://doi.org/10.1145/3326229.3326252`
   Journal version submission @ Discrete & Computational Geometry

8. The Rank of Sparse Random Matrices
   (with A. Coja-Oghlan, Pu Gao, S. Hettereich, H. Rolvien)
   ACM Symposium on Discrete Algorithms (SODA), 2020
   `https://doi.org/10.1137/1.9781611975994.35`
   Submitted to Random Structures and Algorithms

9. A Polyhedral Homotopy Algorithm for Real Zeros
   (with T. de Wolff)

10. The Multivariate Schwartz-Zippel Lemma
    (with L. Dogan, J. Mundo, E. Tsigaridas)
    Minor Revision, SIAM Journal of Discrete Mathematics

11. Functional Norms, Condition Numbers, and Numerical Algorithms in Algebraic Geometry
    (with F. Cucker, J. Tonelli-Cueto)
    Submitted to Forum Mathematics Sigma

Some Talks

Sept 2020	Data Seminar, U Missouri Columbia
Mar 2020	ACO Seminar, Carnegie Mellon University
Jul 2019	SIAM Conference on Applied Algebraic Geometry 2019, Bern

Jun 2019	Effective Methods in Algebraic Geometry (MEGA) 2019, Madrid
Apr 2019	Computational Geometry Workshop, Schloss Dagstuhl, Germany
Feb 2019	Universität Bonn, Theoretical Computer Science Seminar
Nov 2018	Goethe Universität Frankfurt, Applied Discrete Mathematics Seminar
Oct 2018	U Missouri Columbia, Convex Geometry Seminar
Mar 2018	Emerging Trends in Geometric Functional Analysis, Banff Creativity Centre
Dec 2017	Methods on Discrete Structures Lecture Series, TU Berlin
Nov 2017	Algebra Meets Numerics Workshop, Berlin Academy of Sciences
Mar 2017	U Michigan Ann Arbor, Analysis and Probability Seminar
July 2016	Geometric Functional Analysis Concentration Week, Texas A&M
Apr 2016	MIT, LIDS Seminar
Apr 2016	Georgia Tech, Algebra Seminar
Mar 2016	Univ of Chicago, Scientific Computing Seminar
Mar 2016	NC State University, Symbolic Computation Seminar
Dec 2015	Colorado State University, FRAGMENT Seminar
Oct 2015	Technical University of Munich, Applied Geometry Seminar, Germany
Sept 2015	University of Athens, Convex Geometric Analysis Seminar, Greece
Aug 2015	SUMIRFAS, Texas A&M, College Station
June 2015	Effective Methods in Algebraic Geometry (MEGA) 2015, Trento ,Italy

Service

July 2019	Organizer, SIAM Applied Algebraic Geometry Minisymposia:
	Numerical Methods for Structured Polynomial System Solving
Fall 2017	Organizer, Algorithmic Algebra OberSeminar, TU Berlin
Feb 2016	Organizer, Lecture Series on Real Stable Polynomials, Bogazici University
Jan 2016	Organizer, Combinatorial Algebraic Geometry Workshop, Nesin Math Village
Nov 2014	Member of Power Team, Texas A&M High School Contest

References

Teaching	Timothee Bryan (Visiting Assistant Professor of Mathematics, Colgate College)
	Amin Coja-Oghlan (Professor of Discrete Mathematics, Goethe Universität Frankfurt)
	Felipe Cucker (Professor of Mathematics, City University of Hong Kong)
	Pravesh Kothari (Assistant Professor of Computer Science, Carnegie Mellon University)
	Grigoris Paouris (Professor of Mathematics, Texas A&M University)
	J.Maurice Rojas (Professor of Mathematics and Computer Science, Texas A&M University)
	Cynthia Vinzant (Assistant Professor of Mathematics, North Carolina State University)