Alperen Ali Ergür

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                Mathematics Department
                One UTSA Circle
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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- University of Texas at San Antonio
present   *Assistant Professor*

             Mathematics and Computer Science Departments

Sep 2019- Carnegie Mellon University, Theoretical Computer Science Group
Aug 2020 *Postdoctoral Fellow*

             Mentors: Venkatesan Gruswami and Pravesh Kothari

May 2017- Technical University of Berlin, Algorithmic Algebra Group
Aug 2019 *Einstein Postdoctoral Fellow*

             Mentors: Peter Bürgisser and Felipe Cucker

Aug 2016- North Carolina State University, Symbolic Computation Group
May 2017 *Postdoctoral Research Scholar*

             Mentor: Cynthia Vinzant

Sep 2011- Texas A&M University, Functional Analysis and Algebraic Geometry Groups
Aug 2016 *Graduate Research/Teaching Assistant*

             Assistant Instructor at Research Experience for Undergraduates Program

Teaching Experience

1. 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)

2. NC State University

   Instructor for the following courses:

   Linear Algebra for Science Majors, Calculus for Engineers, Precalculus

3. 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`
   Journal version submission @ 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)
    Submission @ SIAM Journal of Discrete Mathematics

Some Talks

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 Missiouri 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
Feb 2017	TU Berlin, Algorithmic Algebra Seminar, Germany
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
2014-2015	Organizer, Texas A&M Working Seminar in Discrete Mathematics

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)