

# Oğuz Gürerk

## Education

- 2019-present **M.S. in Mathematics**, *Boğaziçi University*, Istanbul, Turkey.  
Thesis Supervisor: Ümit Işlak  
Thesis Title: Results on Random Permutation and Random Interval Graphs
- 2013-2019 **B.Sc. in Mathematics with Honors**, *Boğaziçi University*, Istanbul, Turkey.  
Senior Project Supervisor: Ümit Işlak  
Project Title: Outlier Analysis under Heavy Tails
- 2014-2019 **B.A. in Economics with Honors**, *Boğaziçi University*, Istanbul, Turkey.
- 01-05/2018 **Exchange Program**, *McGill University*, Montreal, Canada.

## Research Interests

Probability theory and related fields; outlier analysis, high-dimensional statistics, random graphs and permutation statistics

## Preprints

1. **A study on random permutation graphs**, joint with Ümit Işlak and Mehmet Akif Yıldız; arXiv:1901.06678v1
2. **Results on degree and connectedness-related statistics in random permutation graphs**, joint with Ümit Işlak and Mehmet Akif Yıldız; available upon request.
3. **On a notion of outliers based on ratios of order statistics**, joint with Ahmet Zahid Balcıoğlu and Ümit Işlak; available upon request.
4. **Optimal choice of vaccination scheduling in a population composed of two groups**, joint with Mustafa Akan; to appear in Omeraki, Ş., Ingün Karkış, O. & Gonültaş, S. (Eds.). (2022). *Interdisciplinary Perspectives on the Threat and Impact of Pandemics*

## In Preparation

1. **Unfair trees and unfair permutation graphs**, joint with Ümit Işlak and M. Akif Yıldız
2. **Extensions of the stochastic SEIR model with vaccination and heterogeneous mixing, an optimal control approach**, joint with Ahmet Zahid Balcıoğlu
3. **On a conjecture (Karp, Vazirani, Vazirani; 1990) regarding the worst-case input for RANKING for online bipartite matching**, joint with Mohan Ravichandran

## Grants/Scholarships

- 2020- *Boğaziçi University, 16483-20B06P1, Outliers, order statistics, and concentration inequalities, under the direction of Ümit Işlak, 153.500.00TL*

2014-2018 2205-National Undergraduate Scholarship Programme, 90.000.00TL  
The Scientific and Technological Research Council of Turkey

## Talks

- 04/2021 *Robustizing the Least Squares Approach; Conjectures and Empirical Results*, Statistical Learning Seminars, Boğaziçi University, Istanbul
- 01/2020 *Applications of Stein's Method for Concentration Inequalities*, The Nesin Mathematics Village, Şirince/Izmir
- 10/2019 *A couple of new CLTs for Random Permutation Graphs*, 6. Spring Mathematics Meeting, Hacettepe University, Ankara
- 12/2018 *Using HMM in Strategic Games*, poster presentation, Bayesian Statistics seminars, Boğaziçi University, Istanbul
- 10/2018 *New Perspectives on Outlier Analysis*, IMBM Probability Days, Istanbul Center for Mathematical Sciences (IMBM), Boğaziçi University, Istanbul
- 07/2018 *Stable Laws and the Generalized CLT*, Probability Seminars, Boğaziçi University, Istanbul
- 04/2018 *A (simple) Generalisation of the Hill Estimator*, Statistical Theory Seminar Series, McGill University, Montreal
- 12/2017 *Outlier Analysis under Heavy tails: It's (mostly) Political*, Senior thesis defense, Boğaziçi University, Istanbul
- 10/2017 *Selected Topics in Outlier Analysis*, 2. Spring Mathematics Meeting, Bilkent University, Ankara
- 03/2017 *Outliers, the Law of large Numbers, and Heavy Tails*, 1. Spring Mathematics Meeting, Mimar Sinan University, Istanbul
- 01/2017 *Two lectures on "A simple model of herd behavior (Banerjee, 1992)"*, The Nesin Mathematics Village, Şirince/Izmir

## Conference/Workshop Participation without Talk

- 06/2018 Workshop on Randomness in Complex Geometry and Complex Analysis, The Nesin Mathematics Village, Şirince/Izmir
- 02/2016 Combinatorial Algebraic Geometry Workshop, The Nesin Mathematics Village, Şirince/Izmir
- 07/2012 GAMES2012, The 4th Game Theory Congress, Bilgi University, Istanbul

## Teaching Experience

**Boğaziçi University**, *Student Assistant*, Department of Mathematics.

MATH 541 - *Graduate Probability Theory*, Spring 2020

MATH 344 - *Statistics*, Spring 2019

MATH 345 - *Probability Theory*, Summer 2018

MATH 344 - *Statistics*, Fall 2017

MATH 345 - *Probability Theory*, Summer 2017

## Computer Skills

Python, R, MATLAB, Mathematica

## Other Interests/Activities

2016-present Guest host on the program "Mekanlar ve Çağlar İçinde Ses" aired on Açık Radyo (Open Radio)

2012-17 Voluntary service at The Nesin Mathematics Village  
My Blog (or scratch) on ideology, aesthetics, and political economy:  
<http://usavurmasanati.blogspot.com/>

## Languages

Turkish (mother tongue), English (fluent)

## References

- 1- Mohan Ravichandran, Assistant Professor of Mathematics, Boğaziçi University, mo-han.ravichandran@boun.edu.tr
- 2- Ümit Işlak, Associate Professor of Mathematics, Boğaziçi University, umit.islak1@boun.edu.tr