

Education

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| Ph.D., Operations Research and Financial Engineering, Princeton University Advisors: Prof. Amir Ali Ahmadi, Prof. Maria Chudnovsky <i>Research interests:</i> Polynomial Optimization, Combinatorial Optimization, Graph Theory | Sept. 2016 – Present |
| M.S. in Industrial Engineering, Bogazici University Advisor: Prof. Tmaz Ekim <i>Thesis:</i> Edge-Extremal Graphs under Degree and Matching Number Restrictions | June 2016 |
| B.S. in Mathematics, Double Major, Bogazici University | January 2015 |
| B.S. in Industrial Engineering, Bogazici University | January 2015 |
| Istanbul Lycée de Galatasaray | June 2009 |

Honors and Awards

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| Princeton SEAS Award for Excellence, Princeton University Given to graduate students who have performed at the highest level as scholars and researchers | November 2021 |
| Gordon Wu Fellowship, Princeton University Princeton's highly selective and prestigious award for graduate study in engineering | 2016 – 2020 |
| The Bennett Stewart Fund, ORFE, Princeton University A gift fund from G. Bennett Stewart '74 to support scholarly activities | May 2019 |
| SEAS Professional Development Grant, Princeton University Professional Development Travel Funds | April 2019 |
| Best Poster Award in Optimization Theory, Princeton Day of Optimization | Sept. 2018 |
| TUBITAK-ARRS Fellowship, Turkey-Slovenia Bilateral Research Project “New trends in matching theory”, Project No: 213M620 | 2014 – 2016 |
| Superior Scholarship, Deloitte Education Foundation Merit-based scholarship to support the training of creative, investigative and innovative leaders | 2009 – 2014 |
| State Scholarship, Turkey Exam-based scholarship consisting of a monthly stipend and a boarding school tuition grant | 2000 – 2009 |

Publications and Preprints

- A sum of squares characterization of perfect graphs.**
Submitted. Joint work with A. A. Ahmadi. [\[arXiv\]](#)
- Sums of separable and quadratic polynomials.**
Submitted. Joint work with A. A. Ahmadi, G. Hall. [\[arXiv\]](#)
- Submodular functions and perfect graphs.**
Submitted. Joint work with T. Abrishami, M. Chudnovsky, K. Vušković. [\[arXiv\]](#)
- Induced subgraphs and tree decompositions II. Toward walls and their line graphs in graphs of bounded degree.**
Submitted. Joint work with T. Abrishami, M. Chudnovsky, S. Hajebi, P. Rzażewski, S. Spirkl, K. Vušković. [\[arXiv\]](#)
- Evolution of Q -values for Deep Q-Learning in stable baselines.**
Submitted. Joint work with M. Andrews, K. Palyutina. [\[arXiv\]](#)
- Polynomial-time algorithm for Maximum Independent Set in bounded-degree graphs with no long induced claws.**
SODA 2022. Accepted for publication. Joint work with T. Abrishami, M. Chudnovsky, P. Rzażewski. [\[arXiv\]](#)
- Graphs with polynomially many minimal separators.**
JCT B, 152: 248-280, 2022. Joint work with T. Abrishami, M. Chudnovsky, S. Thomassé, N. Trotignon, K. Vušković. [\[JCT B\]](#)
- Strongly perfect claw-free graphs - A short proof.**
Journal of Graph Theory, 97(3): 359-381, 2021. Joint work with M. Chudnovsky. [\[JGT\]](#)
- New examples of minimal non-strongly-perfect graphs.**
Discrete Mathematics, 344(5), 2021. Joint work with M. Chudnovsky, P. Seymour. [\[DM\]](#)
- Maximum number of edges in claw-free graphs whose maximum degree and matching number are bounded.**
Discrete Mathematics, 340(5): 927-934, 2017. Joint work with T. Ekim, P. Heggenes. [\[DM\]](#)
- On matching extendability of lexicographic products.**
RAIRO - Operations Research, 51(3): 857-873, 2017. Joint work with N. Chiarelli, T. Ekim, D. Gözüpek, S. Miklavič. [\[RAIRO\]](#)
- Equimatchable graphs are C_{2k+1} -free for $k \geq 4$.**
Discrete Mathematics, 339(12): 2964-2969, 2016. Joint work with T. Ekim, D. Gözüpek, M. Shalom. [\[DM\]](#)

Selected Talks

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| University of Massachusetts Amherst, Discrete Math Seminar, Amherst, MA | Nov. 2021 |
| Princeton University, Program in Applied and Computational Mathematics | Nov. 2021 |
| INFORMS Annual Meeting 2021 | Oct. 2021 |
| SIAM Conference on Applied Algebraic Geometry - SIAM AG21 | August 2021 |
| AFOSR MURI Meeting - Verifiable, Control-Oriented Learning On The Fly | May 2021 |
| Sabancı University, Department of Industrial Engineering, Istanbul, Turkey | May 2021 |
| INFORMS Annual Meeting 2020 | Nov. 2020 |
| MIT, LIDS Research Group Meeting, Cambridge, MA | May 2020 |
| Bogazici University, Department of Industrial Engineering, Istanbul, Turkey | Dec. 2019 |
| University of Washington, CS Theory Seminar, Seattle, WA | Oct. 2019 |
| INFORMS Annual Meeting 2019, Seattle, WA | Oct. 2019 |
| Cornell ORIE Young Researchers Workshop 2019, Ithaca, NY | Oct. 2019 |
| Waterloo Coloring Conference 2019, Ontario, Canada | Sept. 2019 |
| NOKIA Bell Labs, Math & Algorithms Theory Seminar, Murray Hill, NJ | Sept. 2019 |
| AFOSR MURI Meeting - Verifiable, Control-Oriented Learning On The Fly, Austin, TX | August 2019 |
| Charles University Noon Seminar, Dept. of Applied Math., Prague, Czechia | June 2019 |
| MOPTA 2018, Lehigh University, Bethlehem, PA | August 2018 |
| Design Theory, Graph Theory and Combinatorics Workshop, Istanbul, Turkey | June 2016 |
| Cologne-Twente Workshop on Graphs and Combinatorial Optimization, Istanbul, Turkey | May 2015 |

Other Selected Conferences/Workshops

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| Cornell ORIE Young Researchers Workshop 2021, Ithaca, NY | Oct. 2021 |
| Banff International Research Station, Alberta, Canada | March 2020, Oct. 2021 |
| Dagstuhl Seminar, Wadern, Germany | June 2019 |
| <i>Editorial coordinator supporting the organizers in preparing the report for the seminar</i> | |
| Barbados Graph Theory Workshop 2018, 2019, Holetown, Barbados | April 2018, April 2019 |
| Princeton Day of Optimization: Optimization, Control, and Machine Learning | Sept. 2018 |
| <i>Best Poster Award in Optimization Theory</i> | |
| WG 2016, International Workshop on Graph-Theoretic Concepts in CS, Istanbul | June 2016 |
| <i>Member of Organizing Committee</i> | |

Academic Service and Professional Activities

Peer Reviewer

- Journal of Combinatorial Theory - Series B
- Journal of Graph Theory
- Electronic Journal of Combinatorics
- Mathematical Methods of OR
- Conferences: WG 2019, MFCS 2019, WG 2021

Student Organizer of the Princeton Optimization Seminar [[Past talks](#)] 2017 – Present

Volunteer Mentor at the Association for Women in Mathematics [[AWM](#)] 2021 – Present

Session Organizer at Inform's Annual Meeting: "Polynomial Optimization" Oct. 2019

Research Visits

Charles University, Prague, Czechia – Martin Loebl, Irena Penev June 2019

University of Bergen, Norway – Pinar Heggernes Sept. 2015

University of Primorska, Slovenia – Martin Milanic Jan. 2015

University of Primorska, Slovenia – Stefko Miklavic Sept. 2014

Student Supervisor of Senior Theses in ORFE 2017 – 2019

Member of Organizing Committee at WG 2016 June 2016

International Workshop on Graph-Theoretic Concepts in Computer Science

Volunteer Math Expert at the Julia Robinson Math Festival April 2017

An [event](#) aimed at inspiring primary school students to pursue mathematics

Nesin Mathematics Village, Izmir, Turkey July 2008, 2011, 2012

A [small village](#) to learn, teach, and think about mathematics in peaceful remoteness

Teaching Experience

Duties: Teaching stand-in lectures for instructor (class size ≥ 110), holding weekly office hours, and grading.

Assistant in Instruction, Princeton University

- Convex and Conic Optimization *Prof. Amir Ali Ahmadi* Spring 2019, 2021
- Introduction to Graph Theory *Prof. Maria Chudnovsky* Spring 2018
- Computing and Optimization *Prof. Amir Ali Ahmadi* Fall 2017, 2018, 2019, 2021

Teaching Assistant, Bogazici University

- Advanced Graph Theory *Prof. Tımaz Ekim* Spring 2016
- Optimal Control Theory *Prof. Mustafa Akan* Spring 2016
- Graph Algorithms and Applications *Prof. Tımaz Ekim* Fall 2015
- Nonlinear Models in Operations Research *Prof. Kuban Altınel* Fall 2015

Student Assistant, Bogazici University

- Graph Algorithms and Applications *Prof. Tımaz Ekim* Fall 2013, 2014
- Discrete Mathematics *Prof. Özlem Beyarşlan* Spring 2013

Industry Experience

Data Science Intern, McKinsey & Company

Summer 2020

Project: Development of advanced analytics models to optimize underlying business problems by applying state-of-the-art quantitative tools and modeling techniques

Bell Labs Summer Intern, Math & Algorithms Team, Murray Hill

Summer 2019

Algorithms, Analytics, Augmented Intelligence and Devices (AAID) Research Lab

Project: Deep reinforcement learning for network control problems

Production Planning, I.E. Ulagay Pharmaceutical Industry, Istanbul

Summer 2013

Project: Experimental studies intended to provide supporting data to resolve technical issues encountered during drug development and delivery technologies

Information Technology, HSBC Turkey, Istanbul

Winter 2013

Project: Assisting in SQL database build and maintenance

Enterprise Risk Services, Deloitte Turkey, Istanbul

Summer 2012

Project: Sent to three different fieldworks to assess the clients' data risk management and to establish internal control systems by querying and analyzing data sets to discover patterns and deliver meaningful insights

Miscellaneous

Leadership and Outreach

- Facilities Chair, Graduate Student Government, Princeton University, 2021-2022
- Graduate Housing Advisory Board, Princeton University, 2021-2022
- President, Turkish Graduate Student Association, Princeton University, 2019-2020
- Vice President, German Graduate Student Association, Princeton University, 2017-2018
- Head of Student Representative Board, Faculty of Engineering, Bogazici University, 2012-2014

Membership

- Member of Society for Industrial and Applied Mathematics (SIAM), since 2019
- Member of Institute for Operations Research and the Management Sciences (INFORMS), since 2017
- Member of Turkish Mathematical Society (TMD), since 2015
- Member of Galatasaray Sports Club, since 2009

Skills

- **Programming:** Python, MATLAB
- **Languages:** Turkish (Native), English (Proficient), French (Advanced)