Cemil Dibek

ORFE, Princeton University

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Education

Ph.D., Operations Research and Financial Engineering, Princeton University	Sept. 2016 – Nov. 2021

Advisors: Prof. Amir Ali Ahmadi, Prof. Maria Chudnovsky
Research interests: Polynomial Optimization, Combinatorial Optimization, Graph Theory

M.S. in Industrial Engineering, Bogazici University	June 2016

Advisor: Prof. Tınaz Ekim
Thesis: Edge-Extremal Graphs under Degree and Matching Number Restrictions

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

Princeton SEAS Award for Excellence, Princeton University	November 2021

Given to graduate students who have performed at the highest level as scholars and researchers

Gordon Wu Fellowship, Princeton University	2016 – 2020

Princeton's highly selective and prestigious award for graduate study in engineering

The Bennett Stewart Fund, ORFE, Princeton University	May 2019

A gift fund from G. Bennett Stewart '74 to support scholarly activities

SEAS Professional Development Grant, Princeton University	April 2019

Professional Development Travel Funds

Best Poster Award in Optimization Theory, Princeton Day of Optimization	Sept. 2018
TUBITAK-ARRS Fellowship, Turkey-Slovenia Bilateral Research Project	2014 – 2016

"New trends in matching theory", Project No: 213M620

Superior Scholarship, Deloitte Education Foundation	2009 – 2014

Merit-based scholarship to support the training of creative, investigative and innovative leaders

State Scholarship, Turkey	2000 – 2009

Exam-based scholarship consisting of a monthly stipend and a boarding school tuition grant

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. Rzążewski, 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.
ACM-SIAM Symposium on Discrete Algorithms (SODA 2022). Joint work with T. Abrishami, M. Chudnovsky, P. Rzążewski. [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. Heggernes. [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

ACM-SIAM Symposium on Discrete Algorithms - SODA22	Jan. 2022
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
Sabanci 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

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
Editorial coordinator supporting the organizers in preparing the report for the seminar	
Barbados Graph Theory Workshop 2018, 2019, Holetown, Barbados	April 2018, April 2019
Princeton Day of Optimization: Optimization, Control, and Machine Learning	Sept. 2018
Best Poster Award in Optimization Theory	
WG 2016, International Workshop on Graph-Theoretic Concepts in CS, Istanbul	June 2016
Member of Organizing Committee	

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 Informs Annual Meeting: "Polynomial Optimization"	Oct. 2019

Research Visits

Charles University, Prague, Czechia – Martin Loebl, Irena Penev	June 2019
University of Bergen, Norway – Pınar 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. Tınaz Ekim*	Spring 2016
• Optimal Control Theory	*Prof. Mustafa Akan*	Spring 2016
• Graph Algorithms and Applications	*Prof. Tınaz Ekim*	Fall 2015
• Nonlinear Models in Operations Research	*Prof. Kuban Altınel*	Fall 2015

Student Assistant, Bogazici University

• Graph Algorithms and Applications	*Prof. Tınaz Ekim*	Fall 2013, 2014
• Discrete Mathematics	*Prof. Özlem Beyarslan*	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 (AAAID) 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)