

Ali Çivril

Contact *Address:* Atlas Üniversitesi Vadi Kampüsü, Anadolu Cad. No:40, 34403 Kağıthane İstanbul
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Personal *Date of Birth:* May 29, 1982
Place of Birth: Çivril, Denizli, Turkey
Citizenship: Turkey

Research Interests

- Scheme-theoretic approach to algorithms and computational complexity.
- Design and analysis of algorithms in the classical sense. In particular, approximation algorithms, network design problems, combinatorial optimization.

Education

RENSELAER POLYTECHNIC INSTITUTE, Troy, New York, USA
Ph.D. - Computer Science December 2009

RENSELAER POLYTECHNIC INSTITUTE, Troy, New York, USA
M.S. - Computer Science December 2007

BILKENT UNIVERSITY, Ankara, Turkey
B.S. - Computer Engineering June 2004

Appointments

ATLAS UNIVERSITY, Istanbul, Turkey
Associate Professor - Computer Engineering September 2022 - now

ISTINYE UNIVERSITY, Istanbul, Turkey
Associate Professor - Computer Engineering February 2020 - August 2022

ANTALYA BILIM UNIVERSITY, Antalya, Turkey
Associate Professor - Computer Engineering August 2015 - July 2016
Assistant Professor - Computer Engineering September 2014 - August 2015

MELİKŞAH UNIVERSITY, Kayseri, Turkey
Assistant Professor - Computer Engineering April 2010 - June 2014

AT&T LABS, INC., Florham Park, NJ, USA
Intern June 2007 - August 2007

RENSELAER POLYTECHNIC INSTITUTE, Troy, NY, USA
Research Assistant January 2007 - June 2008
Teaching Assistant August 2004 - December 2006

Military Service TURKISH ARMED FORCES
Soldier - 6 months August 2010 - February 2011

Publications SUBMITTED MANUSCRIPTS

1. A. Çivril, “Improved Approximation of 2-Vertex-Connected Spanning Subgraph”.
2. A. Çivril, M. Mirza Biçer, B. Tahsin Tunca, and M. Yasin Kangal, “An Improved Integrality Gap for Steiner Tree”.

JOURNAL PUBLICATIONS

1. A. Çivril, *A New Approximation Algorithm for the Minimum 2-Edge-Connected Spanning Subgraph Problem*, Theoretical Computer Science, 943: 121-130, 2023.
2. A. Çivril, *Approximation of Steiner Forest via the Bidirected Cut Relaxation*, Journal of Combinatorial Optimization, 38(4): 1196-1212, 2019.
3. A. Çivril, *Sparse Approximation is Provably Hard under Coherent Dictionaries*, Journal of Computer and System Sciences, 84(1): 32-43, 2017.
4. A. Çivril, *Column Subset Selection Problem is UG-hard*, Journal of Computer and System Sciences, 80(4): 849-859, 2014.
5. A. Çivril, *A Note on the Hardness of Sparse Approximation*, Information Processing Letters, 113(14-16): 543-545, 2013.
6. A. Çivril and M. Magdon-Ismail, *Exponential Inapproximability of Selecting a Maximum Volume Sub-matrix*, Algorithmica, 65(1): 159-176, 2013.
7. A. Çivril and M. Magdon-Ismail, *Column Subset Selection via Sparse Approximation of SVD*, Theoretical Computer Science, 421: 1-14, 2012.
8. A. Çivril and M. Magdon-Ismail, *On Selecting a Maximum Volume Sub-matrix of a Matrix and Related Problems*, Theoretical Computer Science, 410(47-49): 4801-4811, 2009.
9. U. Dogrusoz, E. Giral, A. Cetintas, A. Civril, and E. Demir, *A Layout Algorithm For Undirected Compound Graphs*, Information Sciences, 179: 980-994, 2009.

CONFERENCE PROCEEDINGS

1. A. Çivril and M. Magdon-Ismail, *Deterministic Sparse Column Based Matrix Reconstruction via Greedy Approximation of SVD*, 19th International Symposium on Algorithms and Computation (ISAAC 2008), Gold Coast, Australia, December 15-17, 2008.
2. Yehuda Koren and A. Çivril, *The Binary Stress Model for Graph Drawing*, 16th International Symposium on Graph Drawing (GD 2008), Heraklion, Crete, Greece, Sept 21-24, 2008.
3. A. Çivril, M. Magdon-Ismail and E. Bocek-Rivele, *SSDE: Fast Graph Drawing Using Sampled Spectral Distance Embedding*, 14th International Symposium on Graph Drawing (GD 2006), Karlsruhe, Germany, Sept 18-20, 2006.
4. A. Çivril and M. Magdon-Ismail, *SDE: Graph Drawing Using Spectral Distance Embedding*, 13th International Symposium on Graph Drawing, 2005.
5. U. Dogrusoz, E. Giral, A. Cetintas, A. Civril, and E. Demir, *A Compound Graph Layout Algorithm for Biological Pathways*, 12th International Symposium on Graph Drawing (GD 2004), NYC, NY, Sept. 29-Oct. 2, 2004.

Research Grants

1. Principal Investigator, TÜBİTAK (Scientific and Technological Research Council of Turkey). *New Approximation Algorithms for Steiner Forest and Related Problems*. Budget: 157,225 TRY (\$81,000 at that time), April 2013-February 2016, Project No: 112E192.

Students

- Bilge Kağan Dedetürk, M.S., EECS, Melikşah University, June 2014,
“On a greedy heuristic for the Steiner forest problem”.
- Osman Melih Kürtüncü, M.S., EECS, Melikşah University, June 2014,
“On a greedy heuristic for the multicommodity rent-or-buy problem”.

Honors and Awards

2013 Career Development Grant, TÜBİTAK*.

2008 Fellowship, Rensselaer Polytechnic Institute.

2000 Top 0.1% in the university entrance exam. Full scholarship, Bilkent University.

1999 Silver medal, 7th Turkish National Mathematical Olympiad, TÜBİTAK*.

1999 Regional second place, 7th Turkish National Informatics Olympiad, TÜBİTAK*.

1997 Bronze medal, 2nd Turkish Middle School Mathematical Olympiad, TÜBİTAK*.

*TÜBİTAK: Scientific and Technological Research Council of Turkey

Professional Activities

JOURNALS REFEREED

- SIAM Journal on Matrix Analysis and Applications
- Networks
- Journal of Artificial Intelligence Research
- Computational Statistics and Data Analysis

CONFERENCES REFEREED

- EUROVIS 2008
- COCOON 2008

Teaching

ATLAS ÜNİVERSİTESİ, İstanbul, Türkiye

September 2022 - now

- Theory of Computation: Fall 2022.
- Veri Yapıları (Data Structures): Fall 2022.
- Mathematics for Business: Fall 2022.
- Discrete Mathematics: Spring 2023.

İSTİNYE UNIVERSITY, Istanbul, Turkey

February 2020 - August 2022

- Advanced Algorithm Design (graduate): Fall 2021.
- Networking and Online Games: Spring 2021
- Basic Programming 2 (C++): Spring 2021, Spring 2022.
- Problem Solving with Computers in C++: Spring 2021, Spring 2022.
- Introduction to Game Programming (C#): Fall 2020, Fall 2021.
- Data Structures and Algorithms: Fall 2020, Fall 2021.
- Basic Programming 2 (C++): Spring 2020.
- Problem Solving with Computers in C++: Spring 2020.
- Algorithms and Basic Data Structures: Spring 2020, Fall 2021.

ANTALYA BİLİM UNIVERSITY, Antalya, Turkey

September 2014 - June 2016

- Discrete Mathematics: Fall 2014.
- Approximation Algorithms (graduate): Fall 2014, Fall 2015.
- Data Structures: Spring 2015.
- Computer Organization and Design: Spring 2015, Spring 2016.
- Principles of Programming Languages: Fall 2015.
- Formal Languages and Automata Theory: Spring 2016.

- Nesneye Yönelik Programlama (Object Oriented Programming): Spring 2011.
- Bilgisayar Programlama (Computer Programming): Spring 2011.
- Basic Information Technology: Fall 2011.
- Ayrık Matematik (Discrete Mathematics): Fall 2011, Fall 2012, Fall 2013.
- Lineer Cebir ve Uygulamaları (Linear Algebra and Its Applications): Spring 2012, Spring 2013.
- Algoritma Analizi (Algorithm Analysis): Spring 2013, Spring 2014.
- Hesaplama Teorisi (Theory of Computation): Fall 2013.
- Combinatorial Optimization (graduate): Fall 2011.
- Approximation Algorithms (graduate): Spring 2012.
- Graph Theory (graduate): Fall 2012.
- Advanced Algorithm Design and Analysis (graduate): Spring 2013.
- Computational Complexity (graduate): Spring 2014.

Languages

- Turkish (native)
- English (fluent)
- French (can read mathematical texts)

**Other Interests
and Skills**

- Game Development, Game Design, Game Programming
- Unity (Proficient)
- Unreal (Advanced Beginner)
- C# (Proficient, not including .NET)
- C++ (Proficient)