

# Ali Çivril

---

<b>Contact</b>	<i>Address:</i> İstinye Üniversitesi Vadi Kampüsü, Ayazağa Mah. (Vadistanbul 4A Blok) Sarıyer, 34396 İstanbul <i>E-mail:</i> ali.civril@istinye.edu.tr
<b>Personal</b>	<i>Date of Birth:</i> May 29, 1982 <i>Place of Birth:</i> Çivril, Denizli, Turkey <i>Citizenship:</i> Turkey
<b>Research Interests</b>	<ul style="list-style-type: none"><li>• Scheme-theoretic approach to algorithms and computational complexity.</li><li>• Design and analysis of algorithms in the classical sense. In particular, approximation algorithms, network design problems, combinatorial optimization.</li></ul>
<b>Education</b>	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
<b>Appointments</b>	ISTINYE UNIVERSITY, Istanbul, Turkey <i>Associate Professor</i> - Computer Engineering February 2020 - now  ANTALYA BILIM UNIVERSITY, Antalya, Turkey <i>Associate Professor</i> - Computer Engineering August 2015 - July 2016 <i>Assistant Professor</i> - Computer Engineering September 2014 - August 2015  MELİKŞAH UNIVERSITY, Kayseri, Turkey <i>Assistant Professor</i> - Computer Engineering April 2010 - June 2014  AT&T LABS, INC., Florham Park, NJ, USA <i>Intern</i> June 2007 - August 2007  RENSELAER POLYTECHNIC INSTITUTE, Troy, NY, USA <i>Research Assistant</i> January 2007 - June 2008 <i>Teaching Assistant</i> August 2004 - December 2006
<b>Military Service</b>	TURKISH ARMED FORCES Soldier - 6 months August 2010 - February 2011
<b>Publications</b>	SUBMITTED MANUSCRIPTS <ol style="list-style-type: none"><li>1. A. Çivril, “Improved Approximation of 2-Vertex-Connected Spanning Subgraph”.</li><li>2. A. Çivril, “4/3-Approximation of Graphic TSP”.</li><li>3. A. Çivril, “A New Approximation Algorithm for the Minimum 2-Edge-Connected Spanning Subgraph Problem”.</li></ol>

4. A. Çivril, “Scheme-theoretic Approach to Computational Complexity I. The Separation of P and NP”.
5. A. Çivril, “Dual Growth with Variable Rates: An Improved Integrality Gap for Steiner Tree”.

#### JOURNAL PUBLICATIONS

1. A. Çivril, “Approximation of Steiner Forest via the Bidirected Cut Relaxation”, *Journal of Combinatorial Optimization*, 38(4): 1196-1212, 2019.
2. A. Çivril, “Sparse Approximation is Provably Hard under Coherent Dictionaries”, *Journal of Computer and System Sciences*, 84(1): 32-43, 2017.
3. A. Çivril, *Column Subset Selection Problem is UG-hard*, *Journal of Computer and System Sciences*, 80(4): 849-859, 2014.
4. A. Çivril, *A Note on the Hardness of Sparse Approximation*, *Information Processing Letters*, 113(14-16): 543-545, 2013.
5. A. Çivril ve M. Magdon-Ismail, *Exponential Inapproximability of Selecting a Maximum Volume Sub-matrix*, *Algorithmica*, 65(1): 159-176, 2013.
6. A. Çivril ve M. Magdon-Ismail, *Column Subset Selection via Sparse Approximation of SVD*, *Theoretical Computer Science*, 421: 1-14, 2012.
7. A. Çivril ve 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.
8. U. Dogrusoz, E. Giral, A. Cetintas, A. Civril, ve 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

ISTINYE UNIVERSITY, Istanbul, Turkey

February 2020 - now

- 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 BILIM 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.

MELİKŞAH UNIVERSITY, Kayseri, Turkey

February 2011 - June 2014

- 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 Design
- Game Programming (Monogame, Unity)
- C#
- C++