

Abdurrahman Yaşar



CONTACT	E-Mail: ayasar@gatech.edu Phone: +1 (404) 528-0697		
EDUCATION	Georgia Institute of Technology, USA , PhD. Computer Science Advisor; Ümit V. Çatalyürek <i>Dissertation</i> : Towards Performance Portable Graph Algorithms 2015 - 2021 (Expected)		
	Bilkent University, Turkey , MSc. Computer Engineering Advisor; Buğra Gedik <i>Dissertation</i> : Scalable Layout of Large Graphs on Disk 2013 - 2015		
	Galatasaray University, Turkey , B.Sc. Computer Engineering 2007 - 2012		
SUMMARY	Ph.D. Candidate in Computer Science. Research interest in large-scale graph mining and processing. Seeking full time employment starting May'21.		
HONORS & AWARDS	<ul style="list-style-type: none">• Travel Award: SIAM Conference on Parallel Processing for Scientific Computing 2020• Two of the MIT/Amazon/IEEE HPEC 2018 Graph Challenge Innovation Awards 2019• Travel Award: SIAM Conference on Computational Science and Engineering 2019• One of the four invited students to Chesapeake Large-Scale Analytics Conference 2018• One of the MIT/Amazon/IEEE HPEC 2018 Graph Challenge Champions 2018• Excellence Study Grant Provided by the Embassy of France in Turkey 2013• First Grade, Galatasaray University 2012• Special Jury Award, Team ONGUN, IBM Software Academy, Turkey 2012• Galatasaray Education Foundation (GEV) Bachelors Degree Fellowship 2008		
EXPERIENCE	Georgia Institute of Technology , College of Computing, Atlanta GA <i>Graduate Research Associate</i> Aug. 2015 -		
	Sandia National Laboratories , Albuquerque NM <i>Graduate Summer Intern</i> May.-Aug'18 and May.-Aug'19		
	IBM Almaden Research Center , San Jose CA <i>Graduate Summer Intern</i> May. 2016 - Aug. 2016		
	Inria - Lille Nord Europe , Equipe DART, Lille France <i>Summer Intern</i> May. 2011 - Sep. 2011		
RESEARCH	DATA/COMPUTATION PARTITIONING Balanced distribution of the computation and the data to the processors is a crucial step for efficient parallelism. Towards my PhD. I studied different partitioning strategies. <ul style="list-style-type: none">• Efficient spatial partitioning techniques to speed up irregular problems.• Computation space partitioning strategies to reduce the algorithmic complexity.• Layout techniques to increase memory utilization.		
	A Novel Subgradient-based Method for d-Dimensional Rectilinear Partitioning <i>submitted to IEEE International Parallel & Distributed Processing Symposium (IPDPS)</i> M. F. Balin, X. An, A. Yaşar , L. Song and Ü. V. Çatalyürek 2020		
	On Symmetric Rectilinear Matrix Partitioning <i>submitted to SIAM Journal on Scientific Computing (SISC)</i> A. Yaşar , M. F. Balin, X. An, K. Sancak and Ü. V. Çatalyürek 2020		
	Distributed block formation and layout for disk-based management of large-scale graphs <i>Distributed and Parallel Databases (DPDS)</i> A. Yaşar , B. Gedik, H. Ferhatosmanolu 2017		

GRAPH MINING & BLOCK-BASED ALGORITHM DESIGN

High-performance processing of large scale graphs (i.e., sparse data) is crucial and pervasive. I worked on several graph mining problems.

- Proposing a novel, fast graph merging algorithm.
- Providing coarse-grained and medium-grained triangle counting formulations.
- Implementing architecture (resource)-aware parallelization techniques.

Scalable Triangle Counting on Distributed-Memory Systems (Graph Challenge Innovation Award) 2019

IEEE High Performance Extreme Computing Conference (HPEC)

S. Acer, **A. Yaşar**, S. Rajamanickam, M. M. Wolf and Ü. V. Çatalyürek

Fast Triangle Counting Using Cilk (Graph Challenge Champion)

2018

IEEE High Performance Extreme Computing Conference (HPEC)

A. Yaşar, S. Rajamanickam, M. M. Wolf, J. W. Berry, Ü. V. Çatalyürek

An Iterative Global Structure-Assisted Network Aligner

2018

ACM International Conference on Knowledge Discovery & Data Mining (KDD)

A. Yaşar and Ü. V. Çatalyürek

SiNA: A Scalable Iterative Network Aligner

2018

IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)

A. Yaşar, B. Uçar and Ü. V. Çatalyürek

PERFORMANCE PORTABILITY

Today's heterogeneous computing environments increased the importance of designing flexible algorithms that can run well on various platforms. I tried to address several arising issues.

- Porting graph merging algorithm to an emerging architecture (Emu Chick)
- Proposing a triangle counting formulation for heterogeneous systems

BBTC: A Block-Based Triangle Counting Algorithm on Heterogeneous Environments

2020

submitted to IEEE Transactions on Parallel and Distributed Systems (TPDS)

A. Yaşar, S. Rajamanickam, J. W. Berry and Ü. V. Çatalyürek

Linear Algebra-Based Triangle Counting via Fine-Grained Tasking on Heterogeneous Environments (Graph Challenge Innovation Award)

2019

IEEE High Performance Extreme Computing Conference (HPEC)

A. Yaşar, S. Rajamanickam, M. M. Wolf, J. W. Berry, J. S. Young and Ü. V. Çatalyürek

Programming strategies for irregular algorithms on the Emu Chick

2019

ACM Transactions on Parallel Computing (TOPC) - to appear

E. Hein, S. Eswar, **A. Yaşar**, B. Ucar, Ü. V. Çatalyürek, T. Conte, J. Riedy, R. Vuduc, and J. S. Young

PATENT

Distributing Data by Successive Spatial Partitioning

2017

Patent : US10430104B2

A. Gupta, S. Seshadri, **A. Yaşar**

SKILLS

- C++ (OpenMP, Cilk, TBB, Kokkos), C, Cuda, Python, Java

PERSONAL

- **Citizenship:** Turkey
- **Languages:** Turkish (native), English (professional proficiency), French (limited proficiency)