Kamer Kaya

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Education:

Ph.D. September'09	Department of Computer Engineering, Bilkent University, Ankara, Turkey **Doctoral Dissertation:** Threshold cryptography with Chinese Remainder Theorem. **Advisor**: Prof. Dr. Ali Aydın Selçuk.
M.S. September'04	Department of Computer Engineering, Bilkent University, Ankara, Turkey, **M.S. Thesis:** Iterative-improvement-based heuristics for scheduling tasks sharing files in heterogeneous master-slave environments. **Advisor**: Prof. Dr. Cevdet Aykanat.
B.Sc. June'02	Department of Computer Engineering and and Information Sciences, Bilkent University, Ankara, Turkey, June 2002.

RESEARCH INTERESTS: Parallel algorithms; High-performance computing; Combinatorial scientific computing; Cryptography.

Positions Held:

- **June'14–present** — **Assistant Professor**
Computer Science & Engineering
Faculty of Engineering and Natural Sciences
Sabancı University, Istanbul, Turkey

- **December'12–May'14** — **Research Assistant Professor**
Department of Biomedical Informatics
The Ohio State University, Columbus, OH, USA

- **September'11–November'12** — **Post-Doctoral Researcher**
High Performance Computing Lab
Department of Biomedical Informatics
The Ohio State University, Columbus, OH, USA

- **September'09–September'11** — **Post-Doctoral Researcher**
The Parallel Algorithms Project
CERFACS, Toulouse, FRANCE

Industry Experience:

- **2019 – present** — **Founder and Manager**
Dakik Yazilim Ltd. Sti.
www.dakikyazilim.com
Cyberpark, Ankara, Turkey

- **2006 – 2009** — **Co-founder**
Bor Software
KOSGEB, Beytepe, Ankara

Research Papers:

International journal publications

[36] Naci Ege Saraç, Ömer Faruk Altun, Kamil Tolga Atam, Sertaç Karahoda, Kamer Kaya, Hüsnü Yenigün "Boosting expensive synchronizing heuristics", *Expert Systems with Applications*, 167, 114203, (2021)

[35] Gökhan Göktürk, Kamer Kaya "Boosting Parallel Influence-Maximization Kernels for Undirected Networks With Fusing and Vectorization", *IEEE Transactions on Parallel and Distributed Systems*, 32 (5), 1001-1013, (2021)

[34] Fanny Dufossé, Kamer Kaya, Ioannis Panagiotas, Bora Uçar "Scaling matrices and counting the perfect matchings in graphs", *Discrete Applied Mathematics*, 10.1016/j.dam.2020.07.016, (2020)

[33] Sertaç Karahoda, Osman Tufan Erenay, Kamer Kaya, Uraz Cengiz Trker and Hüsnü Yenigün "Multicore and manycore parallelization of cheap synchronizing sequence heuristics", *Journal of Parallel and Distributed Computing* 140, 13-24, (2020)

[32] Kamer Kaya "Parallel algorithms for computing sparse matrix permanents", *Turkish Journal of Electrical Engineering & Computer Sciences*, 27 (6), 4284-4297, (2019)

[31] Julien Herrmann, M. Yusuf Özkaya, , Bora Uçar, Kamer Kaya and Ümit V Çatalyürek "Multilevel Algorithms for Acyclic Partitioning of Directed Acyclic Graphs", *SIAM Journal on Scientific Computing*, 41 (4), A2117-A2145, (2019)

[30] Kamer Kaya, Figen Öztoprak, Şevket Ilker Birbil, Ali Taylan Cemgil, Umut Şimşekli, Nurdan Kuru, Hazal Koptagel, M. Kaan Öztürk "A framework for parallel second order incremental optimization algorithms for solving partially separable problems", *Computational Optimization and Applications*, 1-31, (2019)

[29] Fanny Dufossé, Kamer Kaya, Ioannis Panagiotas and Bora Uçar "Further notes on Birkhoff-von Neumann decomposition of doubly stochastic matrices", *Linear Algebra and its Applications*, vol. 554, pp. 68-78, (2018)

[28] Cem Topcuoğlu, Kamer Kaya, and Erkay Savaş "A generic Private Information Retrieval scheme with parallel multi-exponentiations on multicore processors", *Concurrency and Computation: Practice and Experience*, https://doi.org/10.1002/cpe.4685, (2018).

[27] Aras Mumcuyan, Baran Usta, Kamer Kaya, and Hüsnü Yenigün "Optimally bipartitioning sparse matrices with reordering and parallelization", *Concurrency and Computation: Practice and Experience*, https://doi.org/10.1002/cpe.4687, (2018).

[26] Hanefi Mercan, Cemal Yılmaz, and Kamer Kaya "CHiP: A Configurable Hybrid Parallel Covering Array Constructor", *IEEE Transactions on Software Engineering*, doi:10.1109/TSE.2018.2837759, (2018).

[25] Izzet F. Şentürk, P. Balakrishnan, Anas Abu-Doleh, Kamer Kaya, Qutaibah Malluh, and Ümit V. Çatalyürek, "A resource provisioning framework for bioinformatics applications in multi-cloud environments", *Future Generation Computer Systems*, vol 78, part 1, (2018).

[24] Sertaç Karahoda, Kamer Kaya, and Hüsnü Yenigün "Synchronizing heuristics: Speeding up the fastest", *Expert Systems with Applications*, 94, 265-275, (2018).

[23] Gamze Tillem, Erkay Savaş, and Kamer Kaya, "A New Method for Computational Private Information Retrieval", *The Computer Journal*, Volume 60, Issue 8, pg:1238–1250, (2017).

[22] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek, "Graph Manipulations for Fast Centrality Computation", *ACM TKDD, Transactions on Knowledge Discovery in Data*, vol. 11, issue 3, article no 26, (2017).

[21] Oğuzhan Ersoy, Thomas B. Pedersen, Kamer Kaya, Ali A. Selçuk and Emin Anarım, "A CRT based verifiable secret sharing scheme secure against unbounded adversaries", *Security and Communication Networks*, 9 (17), 4416-4427, (2016).

[20] Fanny Dufossé, Kamer Kaya, and Bora Uçar, "Two approximation algorithms for bipartite matching on multicore architectures", *Journal of Parallel and Distributed Computing*, vol. 85, pp. 62-78, (2015).

[19] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek, "Regularizing Graph Centrality Computations", *Journal of Parallel and Distributed Computing*, vol. 76, pp. 106–119, (2015).

[18] Mehmet Deveci, Kamer Kaya, Bora Uçar, and Ümit V. Çatalyürek, "Hypergraph partitioning for multiple communication cost metrics: Model and methods", *Journal of Parallel and Distributed Computing*, vol. 77, pp. 69-83, (2015).

[17] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek, "Incremental Closeness Centrality in Distributed Memory", *Parallel Computing*, vol. 47, pp. 3-18, (2015).

[16] Daniel A. Janies, Laura W. Pomeroy, Chris Krueger, Yuqi Zhang, Izzet F. Senturk, Kamer Kaya, and Ümit V. Çatalyürek, "Phylogenetic visualization of the spread of H7 influenza A viruses", *Cladistics*, vol. 31, Issue 6, pp. 679691, (2015).

[15] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek, "Diversifying Citation Recommendations", *ACM Transactions on Intelligent Systems and Technology*, vol. 5 Issue 4, Article No. 55, (2015).

[14] Kamer Kaya, and Ali Aydın Selçuk "Sharing DSS by the Chinese Remainder Theorem", *Journal of Computational and Applied Mathematics*, vol. 259, part B, pp. 495-502, (2014).

[13] Onur Küçüktunç, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek, "Fast recommendation on bibliographic networks with sparse-matrix ordering and partitioning", *Social Network Analysis and Mining*, pp. 1–15, March, (2013).

[12] Kamer Kaya and Bora Uçar, "Constructing elimination trees for sparse unsymmetric matrices", *SIAM Journal on Matrix Analysis and Applications*, 34(2), pp. 345-354, (2013).

[11] Iain S. Duff and Kamer Kaya, "Preconditioners based on strong subgraphs", *Electronic Transactions on Numerical Analysis*, Vol. 40, pp. 25–248, 2013, (2013).

[10] Kamer Kaya, Johannes Langguth, Frederik Manne, and Bora Uçar, "Push-relabel based algorithms for the maximum transversal", *Computers and Operations Research*, 40, 5, pp. 1266–1275, (2012).

[09] Yang Xiang, David Fuhry, Kamer Kaya, Ruoming Jin, Ümit V. Çatalyürek, and Kun Huang, "Merging network patterns: A general framework to summarize biomedical network data", in *Network Modeling Analysis in Health Informatics and Bioinformatics*, vol. 1, Issue 3, pp. 103–116, (2012).

[08] Iain S. Duff, Kamer Kaya, and Bora Uçar, "Design, analysis, and implementation of maximum transversal algorithms", *ACM Transactions on Mathematical Software*, 38, 2, Article 13, (2011).

[07] Murat Ak, Kamer Kaya, Kaan Onarlıoğlu, and Ali Aydın Selçuk, "Broadcast encryption with user profiles", *Information Sciences*, 180, pp. 1060–1072, (2010).

[06] Kamer Kaya and Bora Uçar, "Exact algorithms for a task assignment problem", *Parallel Processing Letters*, 19, pp. 451–465, (2009).

[05] Murat Ak, Kamer Kaya, and Ali Aydın Selçuk, "Optimal broadcast encryption with free riders", *Information Sciences*, 179, pp. 3673–3684, (2009).

[04] Kamer Kaya and Ali Aydın Selçuk, "Threshold cryptography based on Asmuth-Bloom secret sharing", *Information Sciences*, 177, pp. 4148–4160, (2007).

[03] Kamer Kaya, Bora Uçar, and Cevdet Aykanat, "Heuristics for scheduling file-sharing tasks on heterogeneous systems with distributed repositories", *Journal of Parallel and Distributed Computing*, 67, pp. 271–285, (2007).

[02] Kamer Kaya and Cevdet Aykanat, "Iterative-improvement-based heuristics for adaptive scheduling of tasks sharing files on heterogeneous master-slave environments", *IEEE Trans. Parallel and Distributed Systems*, 17, pp. 883–896, (2006).

[01] Bora Uçar, Cevdet Aykanat, Kamer Kaya, and Murat İkinci, "Task assignment in heterogeneous computing systems", *Journal of Parallel and Distributed Computing*, 66, pp. 32–46, (2006).

Book chapters

[03] Mehmet Deveci, Onur Küçüktunç, Kemal Eren, Doruk Bozdağ, Kamer Kaya and Ümit V. Çatalyürek, "Querying Co-regulated Genes on Diverse Gene Expression Datasets Via Biclustering", *Methods in Molecular Biology*, doi: 10.1007/7651_2015_246, in press, (December 2015).

[02] Kamer Kaya, Ayat Hatem, Hatice Gülçin Özer, Kun Huang, and Ümit V. Çatalyürek, "High performance computing in high-throughput sequencing", in M. Elloumi and A. Y. Zomaya (Eds.), *Biological knowledge discovery handbook: Preprocessing, mining and postprocessing of biological data*, John Wiley & Sons, 2014.

[01] Kamer Kaya, Bora Uçar, and Cevdet Aykanat, "Adapting iterative-improvement heuristics for scheduling file-sharing tasks on heterogeneous platforms", in F. Xhafa and A. Abraham (Eds.), *Metaheuristics for Scheduling in Distributed Computing Environments*, Chapter 5, pp. 121–151, (Studies in Computational Intelligence, no. 146), Springer-Verlag Berlin Heidelberg, 2008.

Peer-reviewed conference and workshop publications

[59] Fatih Taşyaran, Berkay Demireller, Kamer Kaya, Bora Uçar, "Streaming Hypergraph Partitioning Algorithms on Limited Memory Environments", *The 2020 International Conference on High Performance Computing & Simulation*, HPCS 2020

[58] Kamer Kaya, Berker Demirel, Barış Batuhan Topal, Arda A?k, ?brahim Buğra Demir, "Vertex Ordering Algorithms for Graph Coloring Problem", *28th Signal Processing and Communications Applications Conference*, SIU 2020

[57] Taha Atahan Akyıldız, Amro Alabsi Aljundi, Kamer Kaya, "Gosh: Embedding big graphs on small hardware", *49th International Conference on Parallel Processing* ICPP 2020, 1-11

[56] Taha Atahan Akyildiz, Amro Alabsi Aljundi, Kamer Kaya, "Understanding Coarsening for Embedding Large-Scale Graphs", *BigGraphs 2020*, Workshop of IEEE BigData 2020.

[55] Kamer Kaya, Johannes Langguth, Ioannis Panagiotas and Bora Uçar, "Karp-Sipser based kernels for bipartite graph matching", *Proceedings of the Twenty-Second Workshop on Algorithm Engineering and Experiments (ALENEX)*, 2020

[54] Fanny Dufossé, Kamer Kaya, Ioannis Panagiotas, and Bora Uçar, "Effective heuristics for matchings in hypergraphs", *International Symposium on Experimental Algorithms*, pg. 248-264

[53] Fatih Taşyaran, Kerem Yıldırır, Kamer Kaya, Mustafa K. Taş "One Table to Count Them All: Parallel Frequency Estimation on Single-Board Computers", *Euro-Par 2019*, August 26-30, Göttingen, Germany

[52] Poyraz Kıvanç Karaçam, Kamer Kaya, and Hüsü Yenigün "Synchronizing Heuristics for Weakly Connected Automata with Various Topologies", *Model-Driven Engineering and Software Development, MODELSWARD 2019*, 475–485.

[51] Berk Çirişci, Muhammed Kerem Kahraman, Çağrı Uluç Yıldırımoğlu, Kamer Kaya, and Hüsü Yenigün "Using Structure of Automata for Faster Synchronizing Heuristics, *MODELSWARD 2018*, 544-551.

[50] Fanny Dufossé, Kamer Kaya, Ioannis Panagiotas, and Bora Uçar, "Approximation algorithms for maximum matchings in undirected graphs", *SIAM Workshop on Combinatorial Scientific Computing (CSC18)*, 2018.

[49] Hanefi Mercan, Kamer Kaya, and Cemal Yılmaz, "Enumerator: an efficient approach for enumerating all valid t-tuples", *7th International Workshop on Combinatorial Testing (IWCT)*, 2018.

[48] Ömer Faruk Altun, Kamil Tolga Atam, Sertaç Karahoda, and Kamer Kaya, "Synchronizing Heuristics: Speeding up the Slowest", *IFIP International Conference on Testing Software and Systems*, 243-256.

[47] Kamer Kaya, Ilker Birbil, Mehmet Kaan Öztrk, and Amir Gohari, "Parallelized Preconditioned Model Building Algorithm for Matrix Factorization", *International Workshop on Machine Learning, Optimization, and Big Data*, 376-388.

[46] Mustafa Kemal Taş, Kamer Kaya, and Erik Saule, "Greed Is Good: Parallel Algorithms for Bipartite-Graph Partial Coloring on Multicore Architectures", *46th International Conference on Parallel Processing (ICPP)*, 2017, 503-512.

[45] Cem Topçuoğlu, Kamer Kaya, and Erkay Savaş, "Multi-exponentiations on multi-cores", *5th National High Performance Computing Conference*, 2018.

[44] Aras Mumcuyan, Kamer Kaya, Hüsnü Yenigün "Reordering matrices for optimal sparse matrix bipartitioning", *5th National High Performance Computing Conference*, 2018.

[43] Hanefi Mercan, Cemal Yılmaz, and Kamer Kaya "An Approach for Choosing the Best Covering Array Constructor to Use", *IEEE International Conference on Software Quality, Reliability and Security Companion (QRS-C)*, 2017.

[42] Julien Herrmann, Jonathan Kho, Bora Uçar, Kamer Kaya and Ümit V. Çatalyürek, "Acyclic Partitioning of Large Directed Acyclic Graphs", *17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing. Madrid, Spain*, May 14-17, 2017.

[41] Mustafa Kemal Taş, Hanefi Mercan, Gülşen Demiröz, Kamer Kaya and Cemal Yılmaz, "Generating Cost Aware Covering Arrays For Free", *4th International Conference on Tools and Methods of Program Analysis, TMPA*, 3–4 March 2017, Russia.

[40] Ersin Ersoy, Kamer Kaya, Metin Altinisik, Hasan Sözer:, "Using Hypergraph Clustering for Software Architecture Reconstruction of Data-Tier Software", *ECSA 2016*: 326-333.

[39] Sertaç Karahoda, Osman T. Erenay, Kamer Kaya, Uraz Cengiz Türker and Hüsnü Yenigün, "Parallelizing Heuristics for Generating Synchronizing Sequences", *IFIP International Conference on Testing Software and Systems*, 106-122, 2016.

[38] Gamze Tillem, Ömer Mert Candan, Erkay Savaş, and Kamer Kaya, "Hiding Access Patterns in Range Queries using Private Information Retrieval and ORAM", *4th Workshop on Encrypted Computing and Applied Homomorphic Cryptography* (in conjunction with Financial Cryptography & Data Security 2016), February 26, 2016.

[37] Ayat Hatem, Kamer Kaya, Jeffrey Parvin, Kun Huang and Ümit V. Çatalyürek, "MICA: MicroRNA Integration for Active Module Discovery", *ACM-BCB 2015, 6th ACM Conference on Bioinformatics, Computational Biology and Biomedicine*, September 9–12, 2015, Orlando, FL.

[36] Mehmet Deveci, Kamer Kaya, Bora Uçar, Ümit V. Çatalyürek, "Fast and High Quality Topology-Aware Task Mapping", *29th IEEE International Parallel and Distributed Processing Symposium*, 2015.

[35] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek, "Hardware/Software Vectorization for Closeness Centrality on Multi-/Many-Core Architectures", *28th Int. Parallel and Distributed Processing Symp. Workshops (IPDPSW), Multithreaded Architectures and Applications (MTAAP)*, May 2014.

[34] Anas Abu-Doleh, Kamer Kaya, Mohamed Abouelhoda, and Ümit V. Çatalyürek, "Extracting Maximal Exact Matches on GPU", *28th Int. Parallel and Distributed Processing Symp. Workshops (IPDPSW), Multithreaded Architectures and Applications (MTAAP)*, May 2014.

[33] Fanny Dufossé, Kamer Kaya, and Bora Uçar, "Randomized matching heuristics with quality guarantees on shared memory parallel computers", *28th IEEE Int. Parallel and Distributed Processing Symp. - IPDPS*, 2014, Phoenix, AZ.

[32] Ahmet Erdem Sarıyüce, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek "Incremental Algorithms for Closeness Centrality", *IEEE Int'l Conference on BigData*, Oct 2013.

[31] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek "STREAMER: a Distributed Framework for Incremental Closeness Centrality Computation", *IEEE Cluster 2013*, Sep 2013.

[30] Anas Abu-Doleh, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek "Masher: Mapping Long(er) Reads with Hash-based Genome Indexing on GPUs", *ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (BCB)*, Sep 2013.

[29] Ayat Hatem, Kamer Kaya, and Ümit V. Çatalyürek "PRASE: PageRank-based Active Subnetwork Extraction", *ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (BCB)*, Sep 2013.

[28] Kamer Kaya, Bora Uçar, and Ümit V. Çatalyürek "Analysis of Partitioning Models and Metrics in Parallel Sparse Matrix-Vector Multiplication", *10th Int'l Conf. on Parallel Processing and Applied Mathematics (PPAM)*, 2013.

[27] Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek "Performance Evaluation of Sparse Matrix Multiplication Kernels on Intel Xeon Phi", *10th Int'l Conf. on Parallel Processing and Applied Mathematics (PPAM)*, 2013.

[26] Mehmet Deveci, Kamer Kaya, Bora Uçar, and Ümit V. Çatalyürek "A Push-relabel-based maximum cardinality bipartite matching algorithm on GPUs", *42nd Int'l. Conf. on Parallel Processing (ICPP)*, 2013.

[25] Mehmet Deveci, Kamer Kaya, and Ümit V. Çatalyürek "Hypergraph sparsification and its application to partitioning", *42nd Int'l. Conf. on Parallel Processing (ICPP)*, 2013.

[24] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek "Towards a personalized, scalable, and exploratory academic recommendation service", *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, 2013

[23] Mehmet Deveci, Kamer Kaya, Bora Uçar, and Ümit V. Çatalyürek "GPU accelerated maximum cardinality matching algorithms for bipartite graphs", *EuroPar 19th Int'l.Conf. on Parallel Processing*, 2013

[22] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek "Result diversification in automatic citation recommendation", *iConference Workshop on Computational Scientometrics: Theory and Applications*, 2013.

[21] Ahmet Erdem Sarıyüce, Kamer Kaya, Erik Saule and Ümit V. Çatalyürek, "Betweenness Centrality on GPUs and heterogeneous architectures", *Workshop on General Purpose Processing Using GPUs (GPGPU)*, in conjunction with ASPLOS, 2013.

[20] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek "Diversified recommendation on graphs: Pitfalls, measures, and algorithms", *22nd International World Wide Web Conference (WWW)*, May 13–17, 2013.

[19] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya and Ümit V. Çatalyürek, "Shattering and compressing networks for betweenness centrality", *SDM'13, 13th SIAM International Conference on Data Mining*, (May 2013).

[18] Ayat Hatem, Kamer Kaya and Ümit V. Çatalyürek, "Microarray vs. RNA-Seq: A comparison for active subnetwork discovery", *ACM-BCM 2012, 3rd ACM Conference on Bioinformatics, Computational Biology and Biomedicine*, October 7–10, 2012, Orlando, FL.

[17] Ümit V. Çatalyürek, Kamer Kaya, and Bora Uçar, "On shared-memory parallelization of a sparse matrix scaling algorithm", *ICPP 2012*, 41st International Conference on Parallel Processing, (September 2012).

[16] Kamer Kaya and Ali Aydin Selçuk, "Sharing DSS by the Chinese remainder theorem", *ICACM, International Conference on Applied and Computational Mathematics*, (October 2012).

[15] Onur Küçüktunç, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek, "Fast recommendation on bibliographic networks", *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, (August 2012).

[14] Ümit V. Çatalyürek, Mehmet Deveci, Kamer Kaya, and Bora Uçar, "UMPa: A Multi-objective, multi-level partitioner for communication minimization", *10th DIMACS Workshop on Graph Partitioning and Graph Clustering*, Atlanta, GA, Feb 13–14, 2012.

[13] Ümit V. Çatalyürek, Kamer Kaya, Johannes Langguth, and Bora Uçar, "A Divisive clustering technique for maximizing the modularity", *10th DIMACS Workshop on Graph Partitioning and Graph Clustering*, Atlanta, GA, Feb 13–14, 2012.

[12] Kamer Kaya, Erik Saule, Onur Küçüktunç, and Ümit V. Çatalyürek, "Algorithms for offline tracking of connected components in large evolving networks", *DNA-SDM 1st SIAM Data Mining Workshop on Dynamic Network Analysis*, (April 2012).

[11] Ümit V. Çatalyürek, Mehmet Deveci, Kamer Kaya, and Bora Uçar, "Multithreaded clustering for multi-level hypergraph partitioning", *IPDPS 2012*, Shangai, China.

[**10**] Ümit V. Çatalyürek, Kamer Kaya, and Bora Uçar, "Integrated data placement and task assignment for scientific workflows in clouds", *DIDC 2011, The 4th International Workshop on Data Intensive Distribute Computing, (held in conjunction with the 20th International Symposium on High Performance Distributed Computing (HPDC 2011)*, San Jose, California, June 2011), pp. 45–54, 2011.

[**09**] Kamer Kaya, François-Henry Rouet, and Bora Uçar, "On partitioning problems with complex objectives", *HPSS 2011, a workshop of Euro-Par*, 2011.

[**08**] İlker Nadi Bozkurt, Kamer Kaya, and Ali Aydın Selçuk,"Practical threshold signatures with linear secret sharing", *AFRICACRYPT 2009*, LNCS, 5580 (2009), pp. 167–178.

[**07**] Kamer Kaya and Ali Aydın Selçuk, "A verifiable secret sharing scheme based on the Chinese Remainder Theorem", *INDOCRYPT 2008*, LNCS, 5365 (2008), pp. 414–425.

[**06**] Said Kalkan, Kamer Kaya, and Ali Aydın Selçuk, "Generalized ID-based blind signatures from bilinear pairings", *ISCIS 2008*.

[**05**] Kamer Kaya and Ali Aydın Selçuk, "Robust threshold schemes based on the Chinese Remainder Theorem", *AFRICACRYPT 2008*, LNCS, 5023 (2008), pp. 94–108.

[**04**] Said Kalkan, Kamer Kaya, and Ali Aydın Selçuk, "Generalized ID-based blind signatures", *ISCIS 2007*.

[**03**] Kerem Kaşkaloğlu, Kamer Kaya, and Ali Aydın Selçuk, "Threshold broadcast encryption with reduced complexity", *ISCIS 2007*.

[**02**] Kamer Kaya, Ali Aydın Selçuk, and Zahir Tezcan, "Threshold cryptography based on Asmuth-Bloom secret sharing", *ISCIS 2006*, LNCS 4263 (2007), pp. 935–942.

[**01**] Hüseyin Acan, Kamer Kaya, and Ali Aydın Selçuk, "Capture resilient ElGamal signature protocols", *ISCIS 2006*. LNCS, 4263 (2007), pp. 943–951.

Other Publications

[**06**] İlker Nadi Bozkurt, Kamer Kaya, Ali Aydın Selçuk, and Ahmet M. Güloğlu, "Secret sharing for general access structures, *Information Security and Cryptology*, Ankara, 2010.

[**05**] İlker Nadi Bozkurt, Kamer Kaya, Ali Aydın Selçuk, and Ahmet M. Güloğlu, "Threshold cryptography based on Blakley secret sharing", *Information Security and Cryptology*, Ankara, 2008.

[**04**] Hüseyin Koyuncu, Kamer Kaya, and Ali Aydın Selçuk, "An analysis of the generalized ID-based ElGamal signatures", *Information Security and Cryptology*, Ankara, 2008.

[**03**] Said Kalkan, Kamer Kaya, and Ali Aydın Selçuk, "Generalized ID-based ElGamal signatures with message recovery", *Information Security and Cryptology*, Ankara, 2007.

[**02**] Kamer Kaya, Baha G. Dündar, Said Kalkan, and Ali Aydın Selçuk, "Threshold Paillier and Naccache-Stern cryptosystems based on Asmuth-Bloom secret sharing", *2nd National Cryptology Symposium*, Ankara, 2006.

[**01**] Murat Ak, Kamer Kaya, Ali Aydın Selçuk, and Zahir Tezcan, "Experiments on probability of success in linear and differential cryptanalysis", *2nd National Cryptology Symposium*, Ankara, 2005.

THESIS SUPERVISED AND BEING SUPERVISED:

- Taha Atahan Akyıldız (Ph.D.), in progress, Sabancı University
- Amro Alabsi Aljundi (Ph.D.), in progress, Sabancı University
- Fatih Taşyaran (M.Sc.), "Fast and Streaming Algorithms for Massive Scale Hypergraph Partitioning", in progress, Sabancı University
- Taha Atahan Akyıldız (M.Sc.), "Boosting Large-Scale Graph Embedding with. Multi-Level Graph Coarsening", September 2020, Sabancı University
- Amro Alabsi Aljundi (M.Sc.), "A CPU-GPU Hybrid Algorithm for Embedding Large Graphs", September 2020, Sabancı University

- Gökhan Göktürk (Ph.D.), "Parallel Influence Maximization Algorithms on Graphs", in progress, Sabancı University.
- Mustafa Kemal Taş (M.Sc.) "Parallel Greedy Algorithms for Graph Coloring", in progress, Sabancı University.
- Baran Usta (M.Sc.), "Optimal hypergraph partitioning", August 2018, Sabancı University
- Sertaç Karahoda (M.Sc.), "Algorithmic Optimization and Parallelization of Eppstein's Synchronizing Heuristic", January 2018, Sabancı University (Co-supervisor, with Hüsnü Yenigün)
- Soner Aydın (M.Sc.), "Link Prediction Models for Recommendation in Academic Collaboration Network of Turkey", July 2017, Sabancı University (Co-supervisor, with Ilker Birbil)
- Matjaz Moser (M.Sc.), "Comparison of MYSQL, NEO4J and apache HIVE database management systems", March 2016, Maribor University, Slovenia (Co-supervisor)
- Amir Emami Gohari (M.Sc.), "Parallel Implementations for Solving Matrix Factorization Problems With Optimization", August 2016, Sabancı University (Co-supervisor, with Ilker Birbil)
- Hanefi Mercan (M.Sc.), "GPU-Based Parallel Computing Methods For Constructing Covering Arrays", August 2015, Sabancı University (Co-supervisor, with Cemal Yılmaz)

Projects:

- HPC Competency Centers, Budget: 1,484,000 Euro, Coordinator: TÜBITAK, Partners: Middle East Technical University, Sabancı University, 2020-2022.
- SparCity: An Optimization and Co-design Framework for Sparse Computation, Budget: 2,605,473, Coordinator: Koç University, Partners: Sabancı University, Simula Research (Norway), INESC (Portugal), Ludwig Maximilians University (Germany), Graphcore (Norway), 2020-2023.
- Insurance Fraud Detection with Machine Learning, Coordinating Company: GTECH, Consultant: K. Kaya, Burget: 50,000 TL, 2019.
- Kompozit Yapıların 3 Boyutlu Gerilme Burkulma ve Dinamik Davranışının Yüksek Doğruluklu ve Hesaplamalı Olarak Verimli Tahmini, Principal Investigator: B. Bediz, Researcher: K. Kaya, Budget: 389,700 TL, 2018-2020.
- Computing Matrix Permanents with High-Performance Parallel Algorithms, TÜBİTAK, 119E544, Principal Investigator, 1/4/20 – 1/4/21
- High Performance Probabilistic Database Management Systems, TÜBİTAK, 118E044, Co-investigator, with S. Yıldırım (Principal Investigator, Sabancı University), E. Öztürk (Co-investigator, Sabancı University), 1/9/18 – 1/9/20
- High Performance Computing Algorithms for the Hypergraph Partitioning Problem, TÜBİTAK, 117E249, Principal Investigator, 3/1/17 – 9/1/19
- Using Modern Parallel Computation Technologies for Cerny Conjecture Falsification and Construction of Reset Sequences, TÜBİTAK, 114E569, Co-investigator, with H. Yenigün (Principal Investigator, Sabancı University), K. Kurşungöz (Co-investigator, Sabancı University) E. Savaş (Co-investigator, Sabancı University), 1/9/15 – 1/9/17
- High Performance Computing for Big and Streaming Data, TÜBİTAK, 115C018, Principal Investigator, 2/1/15 – 2/1/17
- Data, algorithm and analytic capability development for threat surveillance, Defense Threat Reduction Agency, HDTRA1- 14-C-0007, Co-investigator, with Ü. V. Çatalyürek (Principal Investigator, OSU), D. Janies (Principal Investigator, UNCC) and X. Wang (Investigator, UNCC), 1/2/14 – 1/2/15

Conference Presentations and Invited Talks:

- Euro-Par 2019, August 29, 2019, Gottingen, Germany, presented [53]
- NS-Future Seminars, Sabanci University, November 28 2018, presented "Blockchain: Past and Future"
- NS-Future Seminars, Sabanci University, March 29 2017, presented "(High-Performance) Computing: Does HPC matter"

- TÜBİTAK 4th Cloud Computing and Big Data Summer School, November 2016, presented "Probabilistic Algorithms for Big Data" (in Turkish).
- SIAM Parallel Processing, April 12-15 2016 Universite Pierre et Marie Curie, Paris, France, presented "Parallel Approximate Graph Algorithms for Bipartite Graph Matching" (a joint work with Fanny Dufossé and Bora Uçar.
- EMO 3rd Academic Camp on BigData, October 8-11 2015 ?irince Matematik Köyü, Selçuk, Izmir, Turkey, Organizer: Prof. Dr. H. Altay Güvenir (Bilkent University), "Large Scale Systems for BigData Processing" (in Turkish)
- ICPP 2014, October 1–4, 2013, Lyon, France, presented the papers [25 and 26]
- ASONAM'13, August 25–28, 2013, Niagara Falls, ON, Canada, presented the paper [24]
- AN13, SIAM Annual Meeting 2013, July 8–12, 2013, San Diego, CA, presented the work "Matrix Transversals on GPUs" (a joint work with Mehmet Deveci, Bora Uçar, and Ümit V. Çatalyürek)
- ICPP 2012, September 10–13, 2012, Pittsburgh, PA, presented the paper [17]
- ASONAM'12, August 26–29, 2012, İstanbul, Turkey, presented the paper [15]
- DNA-SDM–1st SIAM Data Mining Workshop on Dynamic Networks, April 26–28, 2012, Anaheim, CA, presented the paper [12].
- DIDC 2011–4th Int. Workshop on Data Intensive Computing, June 8, 2011, San Jose, CA, presented the paper [10].
- CSC11–5th SIAM Workshop on Combinatorial Scientific Computing, May 19–21, 2011, Darmstadt, Germany, presented the abstract for the "Preconditioners based on strong subgraphs" (a joint work with Iain S. Duff).
- Preconditioning 2011–Int. Conf. On Preconditioning Techniques For Scientific And Industrial Applications, May 16–18, 2011, Bordeaux, France, presented the abstract for "Preconditioners based on strong subgraphs" (a joint work with Iain S. Duff).
- INDOCRYPT 2008, December 14–17, 2008, Kharagpur, India, presented the paper [7].
- AFRICACRYPT 2008, June 11–14, 2008, Casablanca, Morocco, presented the paper [5].
- ISCIS 2006, November 1-3, 2006, İstanbul, Turkey. Presented the papers [1,2].

Professional Activities:

Organization Committee Member:
- HPC Winter School (with TÜBITAK ULAKBIM, Middle East Technical University, Sabancı University), February 2021, online.
- Mathematics for Machine Learning (with Figen Öztoprak, Utku Karaca, Sinan Yıldırım, Ilker Birbil and Ali Taylan Cemgil), 2020, Nesin Mathematics Village, Şirince, Turkey (online)
- Data Science Summer School (with Sinan Yıldırım, Ilker Birbil, Ali Taylan Cemgil and Ahmet Demirelli), August 2018, TETAM, Boğaziçi University, İstanbul, Turkey
- Data Science Summer School (with Sinan Yıldırım, Ilker Birbil, Ali Taylan Cemgil and Ahmet Demirelli), September 2017, TETAM, Boğaziçi University, İstanbul, Turkey
- Mathematical Foundations of Machine Learning (with Sinan Yıldırım, Ilker Birbil and Ali Taylan Cemgil), 2017, Nesin Mathematics Village, Şirince, Turkey
- Organizer of Summer School on Mathematical Foundations of Machine Learning (with Sinan Yıldırım, Ilker Birbil and Ali Taylan Cemgil), 2017, Nesin Mathematics Village, Şirince, Turkey
- Organizer of HPC for Big Data (workshop in conj. with ICPP, with Buğra Gedik and Ümit V. Çatalyürek), 2017, Bristol, UK
- Organizer of Summer School on Mathematical Foundations of Machine Learning (with Sinan Yıldırım, Ilker Birbil and Ali Taylan Cemgil), 2016, Nesin Mathematics Village, Şirince, Turkey
- Organizer of HPC for Big Data (workshop in conj. with ICPP, with Buğra Gedik and Ümit V. Çatalyürek), 2016, Philadelphia, PA

- Organizer of HPC for Big Data (workshop in conj. with ICPP, with Buğra Gedik and Ümit V. Çatalyürek), 2015, Beijing, China
- Organizer of HPC for Big Data (workshop in conj. with ICPP, with Buğra Gedik and Ümit V. Çatalyürek), 2014, Minneapolis, MN
- Poster Co-Chair of ACM-BCB 2012, October 7–10, 2012, Orlando, FL

Program Committee Member:
- SC 2021, Supercomputing 2021, November 14–19, St. Louis, MO
- ICPP 2021,International Conference on Parallel Processing, August 9–12, Chicago, Illinois
- ISC 2021, ISC High Performance, June 24 - July 2, Online
- Euro-Par 2019, 25th Int. European Conf. on Parallel and Dist. Comp., Germany, August 2019
- ISC 2019, ISC High Performance Conference, Frankfurt, Germany, June 2019
- IC3 2018, 11th Int. Conf. on Contemporary Computing, August 2-4, 2018, Noida, India
- SC 2018, Supercomputing 2018, November 11–16, Dallas, TX
- HIPC 2018, IEEE Int. Conf. on. High Perf. Comp., Data, and Analytics, Dec 17-20 2018, India
- PMAW 2018, The Prog. Models and Algorithms Work., May 21-25, Vancouver, Canada
- UYMS 2018, 12. Ulusal Yazılım Mühendisliği Sempozyumu, September 10-12, İstanbul, Turkey
- CSC 2018, 8th SIAM Workshop on Combinatorial Scientific Comp., June 6-8. Bergen, Norway
- IPDPS 2018, IEEE Int. Parallel and Distributed Processing Sym., May 21-25, Vancouver, Canada
- Başarım 2017, 5. Ulusal Yüksek Başarımlı Hesaplama Konf., September 14-15, İstanbul, Turkey
- SBAC-PAD 2017, October 17-20, Campinas, Brazil
- UYMS 2017, 11. Ulusal Yazılım Mühendisliği Sempozyumu, October 18-20, Alanya, Turkey
- HiPC 2017, IEEE Int. Conf. on High Perf. Comp., Data, and Analytics, Dec 18-21, Jaipur, India
- UBMK 2017, Int. Computer Science and Engineering Conference, October 5-7, Antalya, Turkey
- B3S17, National Cloud Computing and Big Data Symposium, October 19-20, Antalya, Turkey
- SC 2017, The International Conference for High Performance Computing, Networking, Storage and Analysis, November 12-17, Denver, CO, USA
- IC3 2017, International Conference on Contemporary Computing, August 1012, Noida, India
- BDCOM 2016, December 5, Washington DC, USA
- SC 2016, November 13–18, Salt Lake City, Utah
- IPDPS 2016, May 23–27, Chicago, IL, USA
- PCO Workshop, May 23, 2016 (in conjunction with IPDPS), Philadelphia, PA
- IPDPS 2015, May 25–29, Hayderabad, India
- SC 2015, November 15–20, Austin, TX
- HiPC 2015, December 16–19, Bangalore, India
- Başarım 2015, October 1–4 , Ankara, Turkey
- IPDPS 2014, May 19–24, Phoenix, AZ
- PCO Workshop, May 2014 (in conjunction with IPDPS), Phoenix, AZ
- ACM-BCB 2013, September 22–25,, Washington DC
- ParBio 2013 (workshop in conj. with ACM-BCB), Washington DC
- IWBNA 2013 (workshop in conj. with ACM-BCB), Washington DC
- ICPP 2013, October 1–4, Lyon, France
- PCO Workshop, May 24, 2013 (in conjunction with IPDPS), Boston
- IEEE Cluster 2012, September 24–28, Shanghai, China

Referee for journals: ▶ ACM Journal on Experimental Algorithms ▶ Turkish Journal of Electrical Engineering & Computer Sciences ▶ IEEE Transactions on Computers ▶ SIAM Journal on Scientific Computing ▶ Journal on Parallel and Distributed Computing ▶ IEEE Transactions on Parallel and Distributed Systems ▶ Parallel Computing ▶ The Computer Journal ▶ Information Sciences ▶ Journal of Systems and Software ▶ Security and Communication Networks ▶ Finite Fields and Their Applications ▶ Ad Hoc & Sensor Wireless Networks ▶ Concurrency and Computation: Practice and Experience ▶ Knowledge-based Systems

Referee (non-PC member) for conferences: ▶ ISC Turkey, October 30-31, 2015, Ankara, Turkey ▶ HiPC 2013, December 18–21, 2013, Hyderabad, India ▶ IPDPS 2013, May 20–24, 2013, Boston, MA ▶ Supercomputing 2012, November 10–16, 2012, Salt Lake City, Utah ▶ IPDPS 2012, May 21–25, 2012, Shanghai, China ▶ BICoB 2012, March 12–14, 2012, Las Vegas, NV ▶ ICC 2012, June 10–15, 2012, Ottawa, Canada ▶ ISCIS 2009, 22–24 September 2009, London, UK ▶ ISCIS 2008, 27–29 October 2008, İstanbul, Turkey ▶ ISCIS 2007, 14–16 September 2007, Ankara, Turkey ▶ ISCIS 2006, 1–3 November 2006, İstanbul, Turkey

Session Chair ▶ ASONAM 2012, August 26–29, 2012, İstanbul, Turkey ▶ ICPP 2012, September 10–13, 2012, Pittsburgh, PA

PROFESSIONAL MEMBERSHIPS: ACM, SIAM.