Mustafa Ozan Karsavuran

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PERSONAL INFORMATION

◇ **Birth:** December 20, 1988 in Bornova, İzmir, Turkey.
◇ **Citizenship:** Republic of Turkey.
◇ **Language:** Turkish (native) and English (fluent).

RESEARCH INTERESTS

◇ Parallel Computation
◇ Distributed and Shared Memory Architectures
◇ Sparse Tensor Decomposition
◇ Sparse Matrix Multiplication Applications
◇ Matrix Completion with Stochastic Gradient Descent
◇ Cache Locality
◇ Graph and Hypergraph Partitioning

PUBLICATIONS

◇ M.F. Çeliktuğ, **M. O. Karsavuran**, S. Acer and C. Aykanat, "Simultaneous Computational and Data Load Balancing in Distributed-Memory Setting," in **SIAM Journal on Scientific Computing**, *under review*.

◇ N. Abubaker, **M. O. Karsavuran** and C. Aykanat, "Scaling Stratified Stochastic Gradient Descent for Distributed Matrix Completion," in **IEEE Transactions on Knowledge and Data Engineering**, *under review*.

◇ N. Abubaker, **M. O. Karsavuran** and C. Aykanat, "Scalable Unsupervised ML: Latency Hiding in Distributed Sparse Tensor Decomposition," in **IEEE Transactions on Parallel and Distributed Systems**, *early access*, doi: 10.1109/TPDS.2021.3128827.

◇ **M. O. Karsavuran**, S. Acer and C. Aykanat, "Partitioning Models for General Medium-Grain Parallel Sparse Tensor Decomposition," in **IEEE Transactions on Parallel and Distributed Systems**, vol. 32, no. 1, pp. 147-159, 1 Jan. 2021,
doi: 10.1109/TPDS.2020.3012624.

◇ **M. O. Karsavuran**, S. Acer and C. Aykanat, "Reduce Operations: Send Volume Balancing While Minimizing Latency," in **IEEE Transactions on Parallel and Distributed Systems**, vol. 31, no. 6, pp. 1461-1473, 1 June 2020. doi: 10.1109/TPDS.2020.2964536

◇ **M. O. Karsavuran**, K. Akbudak and C. Aykanat, "Locality-Aware Parallel Sparse Matrix-Vector and Matrix-Transpose-Vector Multiplication on Many-Core Processors," in **IEEE Transactions on Parallel and Distributed Systems**, vol. 27, no. 6, pp. 1713-1726, June 1 2016. doi: 10.1109/TPDS.2015.2453970

SELECTED PROJECTS

◇ **Parallel Stochastic Gradient Descent Algorithms for Large-Scale Recommendation Systems**
TUBITAK 1001 - 119E035, PhD student: 31.10.2019 - 31.08.2020, Postdoctoral researcher: 01.09.2020 - 15.02.2022

◇ **Benchmarking (UEABS)**
PRACE-6IP T7.4.A, Benchmark code owner (with Prof. Dr. Cevdet Aykanat) for NEMO package, 01.05.2019 - 31.12.2021

◇ **High Performance Tensor Decomposition Methods For Distributed and Shared Memory Parallel Systems**
TUBITAK 1001 - 116E043, 03.11.2017 - 31.10.2019.

◇ **Peta-scaling Sparse Iterative Solvers via Optimizing Multiple Communication Metrics**
International COST - 114E545, 01.05.2015 - 30.09.2017.

◇ **Target Tracking by Using Seismic Sensors**
Supervisor: İbrahim Körpeoğlu, 2011 – 2012.

◇ **Computing dose of I-131 for Treatment of Thyroid Cancer Using Artificial Neural Network**
Supervisor: Mustafa İnceoğlu, Hasan Korkmaz, 2005 – 2006.

WORK
EXPERIENCE

◇ **Postdoctoral Researcher**
Bilkent University, September 2020 – present, Ankara, Turkey

◇ **Teaching Asistant**
Bilkent University, 2012 Fall – 2020 Spring, Ankara, Turkey
Courses: CS 101: Algorithms and Programming I, CS 102: Algorithms and Programming II, CS 224: Computer Organization, CS470: Introduction to Applied Cryptography, CS473: Algorithms I

◇ **Intern**
Turkcell İletişim Hizmetleri A.Ş., ICT, July – August, 2011, İstanbul, Turkey
Tested projects developed with Microsoft SharePoint and wrote Analysis Document

◇ **Intern**
CMA Danışmanlık ve Bilişim Teknolojileri, June – July, 2010, İzmir, Turkey
Web based Project Management Service using ASP.NET and customized .NET logging library using log4net

EDUCATION

◇ **Doctor of Philosophy in Computer Engineering**
Dept. of Computer Engineering, Bilkent University, September 2014 – August 2020.
Thesis: Reducing Communication Overhead in Sparse Matrix and Tensor Computations
Advisor: Cevdet Aykanat
CGPA: 3.47/4.00

◇ **Master of Science in Computer Engineering**
Dept. of Computer Engineering, Bilkent University, September 2012 – September 2014.
Thesis: Increasing Data Reuse in Parallel Sparse Matrix-Vector and Matrix-Transpose-Vector Multiply on Shared-Memory Architectures
Advisor: Cevdet Aykanat
CGPA: 3.60/4.00

◇ **Bachelor of Science in Computer Engineering**
Dept. of Computer Engineering, Bilkent University, September 2007 – June 2012.
CGPA: 3.44/4.00

◇ **High School**
İzmir Fen Lisesi 2003 – 2006.
Diploma Degree: 4.12/5

HONORS	◇ Design Award for Senior Design Project from Bilkent University, 2012
	◇ 100% Merit Scholarship from Bilkent University 2010 – 2012
	◇ High Honor at 2009 – 2010 Fall, 2010 – 2011 Fall, 2010 – 2011 Spring, 2011 – 2012 Fall, 2011 – 2012 Spring from Bilkent University
	◇ Honor at 2008 – 2009 Fall, 2009 – 2010 Spring, from Bilkent University
	◇ Ranked as 1st at III. Dokuz Eylül University Science and Engineering Project Contest, 2006
	◇ Ranked as 2nd in TÜBİTAK National Project Contest for High School Students, 2006
PERSONAL AFFILIATIONS	◇ SIAM Membership 2021 – 2022
	◇ IEEE Membership 2010 – 2020
	◇ ACM Student Membership 2010 – 2020
TECHNICAL SKILLS	◇ Programming Languages and Technologies: **Advanced in:** C++, C, MPI, OpenMP **Familiar with:** Python, Java SE, C#, .NET, ASP.NET, MATLAB, HTML, Assembly (MIPS and Intel 8051), PHP, Microsoft SQL Server, MySql