# Dr. Sanem Arslan Yılmaz

## Research Assistant, Marmara University

| CONTACT INFORMATION | Department of Computer Engineering |
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CITIZENSHIP    TURKEY

EDUCATION

**Boğaziçi University**, İstanbul, Turkey

Ph.D., Computer Engineering, GPA: 3.80/4.00, 2011 - 2017
- Thesis Title: *Performance and Cost Efficient Reliability Framework for Multicore Architectures*
- Advisor: Professor Oğuz TOSUN
- Co-Advisor: Professor Haluk TOPÇUOĞLU

**Boğaziçi University**, İstanbul, Turkey

M.S., Computer Engineering, GPA: 3.50/4.00, 2009 - 2011
- Thesis Title: *Scheduling of Multiple Multithreaded Applications on Chip Multi-processors*
- Advisor: Professor Oğuz TOSUN
- Co-Advisor: Professor Haluk TOPÇUOĞLU

**Marmara University**, İstanbul, Turkey

B.S., Computer Engineering, GPA: 3.56/4.00, 2004 - 2009
- Advisor: Professor Haluk TOPÇUOĞLU

RESEARCH INTERESTS

My research interests are computer architecture, chip multiprocessors, fault tolerance, reliability, high performance computing, and parallel programming. My main research focuses on improving the reliability of parallel applications for multicore architectures under the power and performance constraints.

RESEARCH PROJECTS

ELASTIK - A Cross-Layer Reliability Optimization Framework for Manycore Architectures, TUBITAK – 1001 Project 113E530

*Researcher* **2013 - 2016**

Application Scheduling and Optimization for Chip Multiprocessor (CMP) Architectures, TUBITAK – Evrena Project 108E035

*Researcher* **2010 - 2011**

Determining Cancerous Tissues Using Morphological Algorithms, IBM Türkiye

*Researcher* **June 2008 - June 2009**

*Studied in a project called "Determining cancerous tissues using Morphological Algorithms" implemented into a cluster of two Playstation3s which contain CELL BE microprocessor.*

ACADEMIC
EXPERIENCE

**Marmara University**, Department of Computer Engineering

*Teaching Assistant* **December 2009 to Present**

**Courses Thaught**
- CSE 1141: Computer Programming I
  - Fall 2017, 2018
  - Responsible for teaching and organization of the course which is based on Java programming language.

- CSE 1142: Computer Programming II
  - Spring 2018, 2019
  - Responsible for teaching and organization of the course which is based on Java and C programming languages.

**Courses Assisted**
- CSE 333: Operating Systems
  - Fall 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017
  - Responsible for LAB sessions and projects which are programming assignments to be developed on Bash Shell and C programming language.

- CSE 338: Computer Organization
  - Spring 2014, 2015, 2016, 2017, 2018
  - Responsible for problem sessions and projects which are programming assignments to be developed on SPIM and ModelSim simulators.

- CSE 4048: Introduction to Machine Learning
  - Fall 2018
  - Responsible for homework and project evaluation of the course.

- CSE 246: Analysis of Algorithms
  - Spring 2012
  - Responsible for homework evaluation of the course.

- CSE 459: Internet Programming
  - Spring 2010, Spring 2011
  - Responsible for programming assignments to be developed on Java programming language.

- CSE 474: Computer Networks Spring 2011
  - Spring 2011
  - Responsible for homework evaluation and programming assignments to be developed on Java programming language.

- CSE 364: Formal Languages and Automata Theory
  - Spring 2010
  - Responsible for homework evaluation of the course.

- CSE 498: Engineering Project II
  - Spring 2010
  - Responsible for seminar organization of senior-level course.

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| JOURNAL PUBLICATIONS | **Sanem Arslan**, Haluk Rahmi Topcuoglu, Mahmut Taylan Kandemir, Oguz Tosun. Scheduling Opportunities for Asymmetrically Reliable Caches, *Journal of Parallel and Distributed Computing (Science Citation Index)*, Vol. 126, pp. 134-151, 2019. doi:10.1016/j.jpdc.2019.01.005. |
| | Isil Oz, **Sanem Arslan**. A Survey on Multithreading Alternatives for Soft Error Fault Tolerance, *ACM Computing Surveys (CSUR) (Science Citation Index)*, Vol. 52(2), Article 27 (March 2019), 38 pages. doi:https://doi.org/10.1145/3302255. |
| | **Sanem Arslan**, Haluk Rahmi Topcuoglu, Mahmut Taylan Kandemir, Oguz Tosun. A selective protection scheme of applications using asymmetrically reliable caches, *Journal of Systems Architecture (Science Citation Index Expanded)*, Vol. 75, pp. 133-144, 2017. doi:http://dx.doi.org/10.1016/j.sysarc.2016.12.004 |
| | **Sanem Arslan**, Haluk Rahmi Topcuoglu, Mahmut Taylan Kandemir, Oguz Tosun. Asymmetrically reliable caches for multicore architectures under performance and energy constraints, *Cluster Computing (2016), 19: 1819 (Science Citation Index Expanded)*, doi:10.1007/s10586-016-0641-2 |
| CONFERENCE PUBLICATIONS | Zuhal Ozturk, Haluk Rahmi Topcuoglu, **Sanem Arslan**, Mahmut Taylan Kandemir Soft Error Characterization on Scientific Applications, *16th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC)*, Athens, 2018. |
| | Muhammad Aditya Sasongko, Haluk Rahmi Topcuoglu, **Sanem Arslan**, Mahmut Taylan Kandemir Compiler-Enhanced Reliability for Network-on-Chip Architectures, *25th Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP)*, St. Petersburg, 2017. |
| | **Sanem Arslan**, Haluk Rahmi Topcuoglu, Mahmut Taylan Kandemir, Oguz Tosun. Protecting Code Regions on Asymmetrically Reliable Caches, *Architecture of Computing Systems – ARCS*, Nuremberg, Germany, April 4-7, 2016. |
| | **Sanem Arslan**, Haluk Rahmi Topcuoglu, Mahmut Taylan Kandemir, Oguz Tosun. Performance and Energy Efficient Asymmetrically Reliable Caches for Multicore Architectures, *IPDPS Workshops*, Hyderabad, India, 2015. |
| POSTER SESSIONS | **Sanem Arslan**, Haluk Rahmi Topcuoglu, Mahmut Taylan Kandemir, Oguz Tosun. Performance and Cost Efficient Asymmetrically Reliable Caches (Poster), Thirteenth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES), 9-15 July 2017, Fiuggi, Italy. |

TECHNICAL SKILLS

- Programming languages: C, Java, Python, Matlab, Verilog

- Parallel programming: Pthreads, OpenMP, MPI, Intel Thread Building Block (TBB)

- Simulation/instrumentation: Simics full system simulator, gem5 full system simulator, Simple Scalar, Cacti, McPAT, SPIM, ModelSim

## Honors & Awards

2211  TUBITAK - PhD Scholarship

HiPEAC  Student Grant for Thirteenth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES 2017)

TCPP  Student Travel Assistance Grant for IPDPS 2015

2009  Graduation with 3rd rank in B.S.

## Professional Activities

- Reviewer in Cluster Computing The Journal of Networks, Software Tools and Applications (Science Citation Index Expanded).
- Program Committee, Computer Science Student Workshop (CSW), Istanbul, 2011.
- IEEE membership
- HiPEAC membership

## Other Academic Activities

- Attendee of the Thirteenth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems organized by HiPEAC (ACACES'17) 9-15 July 2017, Fiuggi, Italy.
- Attendee of the 29th GI/ITG International Conference on Architecture of Computing Systems (ARCS'16), 04-07 April 2016, Nuremberg, Germany.
- Attendee of the 29th IEEE International Parallel & Distributed Processing Symposium (IPDPS'15), May 25-29, 2015, Hyderabad, INDIA.
- Attendee of the 20th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'15), March 14-18, 2015, Istanbul, Turkey.
- Attendee of the 21st IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC'13), Oct 06-09 2013 Istanbul, Turkey.