Emre Ateş http://emreates.github.io ates@bu.edu

Research Interests

Monitoring and Management of Large-Scale Systems and Software, Machine Learning, End-to-end Tracing, Data Analysis, Cloud Computing, High Performance Computing

Education

Boston University, Electrical and Computer Engineering Dept. 2015 - Present
PhD in Computer Engineering (Advisor: Prof. Ayşe K. Coşkun) GPA: 3.93
Coursework: Advanced Data Structures, Computer Architecture, Digital Design, Embedded Systems, Data Mining, Operating Systems, Cybersecurity, Advanced Computer Systems

Middle East Technical University (METU), Turkey 2010 - 2015
B.S. in Electrical and Electronics Engineering GPA: 3.23, Ranking: 37^{th}/353
Minor in History of Philosophy GPA: 3.50

Research Experience

PeacLab Research Group, Boston, MA *September 2015 – present*
Researched on data center monitoring and analytics, interference in HPC and cloud systems, end-to-end tracing of distributed applications.

Software Skills

Programming Languages: C, C++, Python, Rust, Bash (and other shell), R, Java, Verilog, Perl
Environments and Tools: OpenStack, scikit-learn, Vowpal Wabbit, Autotools, LaTeX

Selected Publications

E. Ates, L. Sturmann, M. Toslali, O. Krieger, R. Megginson, A.K. Coskun, R.R. Sambasivan, "An automated, cross-layer instrumentation framework for diagnosing performance problems in distributed applications," to appear in *Symposium on Cloud Computing* (SoCC), 2019.

E. Ates, Y. Zhang, B. Aksar, J. Brandt, V.J. Leung, M. Egele, A.K. Coskun, "HPAS: An HPC Performance Anomaly Suite for Reproducing Performance Variations," in *Intl. Conf. on Parallel Processing* (ICPP), Kyoto, 2019.

O. Tuncer, **E. Ates**, Y. Zhang, A. Turk, J. Brandt, V.J. Leung, M. Egele, A.K. Coskun, "Online Diagnosis of Performance Variation in HPC Systems Using Machine Learning," in *IEEE Trans. on Parallel and Distributed Systems*, vol. 30, no. 4, pp. 883-896, 2019.

Q. Xiong, **E. Ates**, M.C. Herbordt, A.K. Coskun, "Tangram: Colocating HPC Applications with Oversubscription," in *IEEE High Performance Extreme Computing Conf.*, Boston, 2018.

E. Ates, O. Tuncer, A. Turk, J. Brandt, V.J. Leung, M. Egele, A.K. Coskun, "Taxonomist: Application Detection through Rich Monitoring Data," in *European Conf. on Parallel and Distributed Systems* (Euro-Par), Torino, 2018.

Internships

Google LLC, New York, NY *Spring 2019*
As part of the Google Wide Profiling team, optimized the memory allocator TCMalloc.

Lawrence Livermore National Laboratory, Livermore, CA *Summer 2017*
Investigated the effect of power, network QoS, external traffic, number of processes, etc. on different supercomputing benchmarks, used machine learning to model performance.

Sandia National Laboratories, Albuquerque, NM *Summer 2016*
Analyzed system monitoring data to automatically detect and classify anomalies in HPC clusters. Investigated allocation and task mapping algorithms for dragonfly systems.

Teaching Experience

Applied Algorithms and Data Stuctures, Boston University *Spring 2016, Fall 2016*
Head TA; held weekly discussion sessions, graded exams/assignments, coordinated the graders.

Awards and Scholarships

Best Artifact Award at Euro-Par August 2018
Given for the data, code and Jupyter Notebooks released with the publication

Gauss Award at ISC-HPC June 2017
Research paper award given by German Gauss Center for Supercomputing

Invited Talks

"Diagnosing Performance Variations in HPC Applications Using Machine Learning", Lawrence Berkeley National Laboratory - NERSC, July 2017.