EMRE ATEŞ

(857) 540-8435 ⋄ ates.emre@gmail.com ⋄ https://emreates.github.io

EDUCATION

Boston University Summer 2020
PhD in Computer Engineering (Advisor: Prof. Ayşe K. Coşkun) *GPA: 3.93 / 4.0*

Thesis title: Towards automated analytics on large-scale computing systems

Coursework: Data Structures and Algorithms, Computer Architecture, Data Mining, Operating Systems, Cybersecurity, Computer Systems, Digital Design, Embedded Systems

Middle East Technical University (METU), Turkey Spring 2015
BSc in Electrical and Electronics Engineering
Minor in History of Philosophy

TECHNICAL SKILLS

Languages	*(proficient:)* C, C++, Python, Rust, Bash, *(familiar:)* SQL, R, Java, Perl
Software & Tools	git, gdb, OpenStack, scikit-learn, Vowpal Wabbit, Autotools, TensorFlow

WORK EXPERIENCE

Google, Boston, *Software Engineer* August 2020 – present

Improve video quality and reduce bitrates for YouTube using hardware accelerators: `goo.gle/vcu`.

Google, NYC, *Software Engineering Internship* Spring 2019

Implemented data collection and heuristics in **C++, Go** within the memory allocator, TCMalloc.
Built a simulator pipeline using **SQL, C++, Flume** to compare heuristics.
Improved the performance of a major Google service in data center-scale tests.

Lawrence Livermore National Laboratory, *Research Internship* Summer 2017

Measured performance effects of power/network on supercomputers using **Bash** and **Python**.
Improved compatibility of power measurement **kernel module** for the latest version of Linux.

Sandia National Laboratories, *Research Internship* Summer 2016

Studied network contention on application performance for HPC systems using **MPI**.

SELECT PROJECTS

HPC Performance Analytics, *Boston University & Sandia National Labs* 2015 – 2020

Developed an HPC performance interference generation suite in **C**.
Built a supervised learning framework in **Python** using **MongoDB, scikit-learn, TensorFlow** that collects numeric time series data from supercomputers, and detects performance anomalies, running applications, or cryptocurrency mining.

Distributed Tracing on the Cloud, *Boston University & RedHat* 2017 – 2020

Extended existing distributed tracing for **OpenStack** using **Python, Redis**.
Built a graph processing pipeline in **Rust** to explore instrumentation options in response to ongoing performance problems.

PUBLICATIONS

E. Ates, B. Aksar, V.J. Leung, A.K. Coskun "Counterfactual Explanations for Multivariate Time Series." to appear in *International Conference on Applied Artificial Intelligence* (ICAPAI), 2021.

A. Byrne, **E. Ates**, A. Turk, V. Pchelin, S. Duri, S. Nadgowda, C. Isci, A.K. Coskun, "Praxi: Cloud software discovery that learns from practice," to appear in *IEEE Trans. on Cloud Computing* (TCC).

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," in *Symposium on Cloud Computing* (SoCC), Santa Cruz, 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.

T. Patki, **E. Ates**, A.K. Coskun, J.J. Thiagarajan, "Understanding simultaneous impact of network QoS and power on HPC application performance," in *Computational Reproducibility at Exascale* (CRE), Dallas, 2018.

O. Tuncer, **E. Ates**, Y. Zhang, A. Turk, J. Brandt, V.J. Leung, M. Egele, A.K. Coskun, "Diagnosing performance variations in HPC applications using machine learning," in *Intl. Supercomputing Conf.* (ISC-HPC), Frankfurt, 2017.

AWARDS AND FELLOWSHIPS

Best Artifact Award at EuroPar'18

Gauss Center for Supercomputing Award at ISC-HPC'17

A. Richard Newton Young Fellowship at DAC'16

Distinguished ECE Fellowship from Boston University

Analog Electronics Laboratory Best Project Award at METU

ACTIVITIES

Student Volunteer, *Symposium on Cloud Computing (SoCC)* November 2019

Student Volunteer, *International Conference for High Performance Computing, Networking, Storage and Analysis (SC)* October 2017

Pianist, *Boston University Big Band* 2015 – 2018

Musical Director & Pianist, *METU Musical Society* 2012 – 2013

Led a team of 12 instrumentalists, and trained 14 actors to stage multiple Broadway musicals. Collaborated with professionals from all branches of show business, and a technical crew of 30.