EMRE ATEŞ

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EDUCATION

Boston University   Expected 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   *GPA: 3.23 / 4.0, top 10%*
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, 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.

Boston University, *Head Teaching Assistant*   Spring 2016, Fall 2016

> Held weekly discussion sessions, wrote homework solutions for Applied Algorithms and Data Structures.

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 – present

> 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 – present

> 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

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, *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.

Pianist, *METU Musical Society* 2010 – 2015