

# EMRE ATEŞ

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## EDUCATION

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### 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

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**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

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### Google, Bostom, Software Engineer

August 2020 – present

Develop video encoding software for YouTube in **C++**.

### 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

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### 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

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- 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. Sturmman, 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 over-subscription,” 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* (EuroPar), 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

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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

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<b>Student Volunteer</b> , <i>Symposium on Cloud Computing (SoCC)</i>	November 2019
<b>Student Volunteer</b> , <i>International Conference for High Performance Computing, Networking, Storage and Analysis (SC)</i>	October 2017
<b>Pianist</b> , <i>Boston University Big Band</i>	2015 – 2018
<b>Musical Director</b> , <i>METU Musical Society</i>	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.	
<b>Pianist</b> , <i>METU Musical Society</i>	2010 – 2015