

Mert Toslali

🏠 Boston, MA

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🔗 mtosalibu.github.io

Research scientist at IBM Research, with a focus on systems and applied machine learning research to tackle challenges associated with manageability, scalability, security, risk, and compliance in the cloud.

Education

Boston University

Ph.D., Computer Engineering, GPA: 4.0/4.0

- Thesis: Efficient navigation of performance unpredictability in cloud through automated analytics systems
- Award: Distinguished Computer Engineering Fellowship

Boston, MA, USA

Sept 2018 - May 2023

Bilkent University

B.S., Electrical and Electronics Engineering, GPA: 3.63/4.0

- Award: Comprehensive Scholarship

Turkey

Sept 2011 - June 2016

University of Nebraska Lincoln

Exchange Student, Electrical and Computer Engineering

Lincoln, NE, USA

Aug 2014 - Jan 2015

Professional experience

IBM T.J. Watson Research Center

Research Scientist (Manager: Dr. Srinivasan Parthasarathy)

- Research: Machine learning based data fusion methods to combine diverse data sources, enabling software risk analysis and generating concise and easily understandable risk views and assessments.

Cambridge, MA, USA

June 2023 - present

IBM T.J. Watson Research Center

Research Intern, 4x summer internships (Mentor: Dr. Srinivasan Parthasarathy)

- Research: Automated, machine learning-driven methods aimed at significantly enhancing efficiency in diagnosing application performance and deploying new code within cloud environments.

Yorktown Heights, NY, USA

May 2018 - Jul 2022

PeacLab, Boston University

Research Assistant (Advisor: Prof. Ayse K. Coskun)

- Research: Automated analytics approaches using statistically driven techniques to accurately localize and diagnose performance variations in code and help prevent them in code delivery cycles.

Boston, MA, USA

Sept 2018 - May 2023

CyanGate

Software Engineer

- Developed file distribution platform integration with Google Drive, Box, Amazon S3

Ankara, Turkey

Jan 2018 - July 2018

OpsGenie-Atlassian

Software Engineer

Developed REST APIs for backend cloud services with Elastic Search and custom query syntax using Antlr

Ankara, Turkey

July 2017 - Dec 2017

Turkcell

Software Engineer

- Messaging application (BiP) Rest API services: Developed BiP Translate, BiP Game Ground, BiP Pharmacy, BiP Weather, BiP Retail Hunt, BiP Face recognition services
- OTA (over the air) interface: Developed the OTA client for sim card applications
- Payment reconciliation infrastructure: Developed the payment infrastructure for BiP

Istanbul, Turkey

July 2016 - July 2017

Seneka

Software Engineer

- Contributed to development of Electronic Document Management System for Turkish Ministry

Ankara, Turkey

Sept 2015 - July 2016

Turkcell

Software Engineering Intern

- Contributed to a research project for energy-aware data center engineering

Ankara, Turkey

July 2015 - Sept 2016

Gate Electronic

Software Engineering Intern

- Contributed to the development of file management and encryption system

Ankara, Turkey

July 2014 - Sept 2014

Publications

- **M. Toslali**, E. Snible, J. Chen, A. Cha, S. Singh, M. Kalantar, S. Parthasarathy, "AgraBOT: Accelerating Third-Party Security Risk Management in Enterprise Setting through Generative AI". To appear in Proceedings of the 32st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2024).
- S. Qasim, **M. Toslali**, Q. Clark, S. Parthasarathy, F. Oliveira, A. Liu, G. Stringhini, A. Coskun, "Efficient Navigation of Cloud Performance with 'nuffTrace". IEEE International Conference on Cloud Engineering (IC2E 2023)
- **M. Toslali**, E. Ates, D. Huye, Z. Zhang, L. Liu, S. Puterman, A.K. Coskun, R.R. Sambasivan, "VAIF: Variance-driven Automated Instrumentation Framework". SIGOPS Oper. Syst. Rev. (June 2022).
- **M. Toslali**, S. Parthasarathy, F. Oliveira, H. Huang, A. Coskun, "Iter8: Online Experimentation in the Cloud". In Proceedings of the ACM Symposium on Cloud Computing (SoCC '21).
- **M. Toslali**, E. Ates, A. Ellis, Z. Zhang, D. Huye, L. Liu, S. Puterman, A.K. Coskun, R.R. Sambasivan, "Automating instrumentation choices for performance problems in distributed applications with VAIF". In Proceedings of the ACM Symposium on Cloud Computing (SoCC '21).
- S. Allen, **M. Toslali**, F. Oliveira, S. Parthasarathy, A. Coskun, "Tritium: A Cross-layer Analytics System for Enhancing Microservice Rollouts in the Cloud". In Proceedings of the 7th International Workshop on Container Technologies and Container Clouds (WOC' 21).
- **M. Toslali**, S. Parthasarathy, F. Oliveira, A. Coskun, "JACKPOT: Online experimentation of Cloud Microservices". In 12th USENIX Workshop on Hot Topics in Cloud Computing (HotCloud '20).
- 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 Proceedings of ACM Symposium on Cloud Computing (SoCC '19).

Teaching experience

Boston University

Teaching Assistant

- Advanced data structure and algorithms course

Bilkent University

Teaching Assistant

- Computer science 101 course
- Physics 101 course
- Physics 102 course

Bilkent University

Volunteer Teacher

- Elementary school Mathematics course
- Elementary school Science course

Ankara, Turkey

Sept 2019 – May 2021

Ankara, Turkey

Sept 2012 – July 2014

Ankara, Turkey

Sept 2012 – Jan 2014

Skills

Applied Machine Learning, Information Retrieval, Large Language Models, Natural Language Processing, Distributed Tracing, A/B testing, Online experimentation, Cloud Microservices, Software Risk and Compliance, Python, Java, C#, .Net, Kubernetes, Istio, Docker, Amazon Web Services, Huggingface, Elastic Search, SQL, JavaScript, Hibernate, Mongo DB, Oracle DB, Spring, Spring boot