Title:
Customization of general-purpose cloud platforms

Abstract:
The explosion of cloud applications has been possible in large part through the development of general-purpose platforms that can satisfy the needs of a wide set of applications. On the other hand, it has been shown that service-specific systems, optimized for a particular workload, can achieve dramatically better performance. However, this performance gain comes at a cost, making sharing of resources and data challenging, and resulting in substantially increased operational costs. In this talk, I will present a collection of my recent works focused on using customization to enable some of the performance gains of service-specific systems in general-purpose shared systems. I discuss the research efforts to enable customization through novel policies, exposing information through hints (while preserving the general-purpose interfaces), and extracting crucial information required for customization. The three areas are: (1) caching systems for object storage, (2) recovery of locality in serverless computing, and (3) cross-layer tracing and optimization in microservice architecture-based applications.

Bio:
Mania Abdi is a Ph.D. candidate in the Khoury College at Northeastern University where she is advised by Peter Desnoyers and Orran Krieger. Her research is focused on serverless computing, large-scale analytics, distributed caching, and cloud storage systems. Her goal is to pursue research that can have an end-user impact, and the number of projects she has been involved in, either have or are being integrated into large upstream efforts. Her research effort has been published in leading system venues such as FAST, Eurosys, and ATC. Prior Ph.D., she worked for seven years as a system engineer. She received her M.Sc. from Northeastern University in 2018 and B.Sc. from Amirkabir University of Technology, Iran in 2007.