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University Wide Faculty Candidate Seminar

Centralized Processing and Caching: Architectures for Future Networks

Shirin Saeedi Bidokhti, PhD, Postdoctoral Scholar Stanford University
Tuesday March 7, 2017
11:30 AM-12:30 PM, Room 202 ECEC

Abstract:

The high rate at which data is acquired, stored, and communicated, and the massive number of users impose new challenges in future network applications (e.g. the Internet of Things). This asks for modern compression techniques for large datasets, and a smart use of the available storage units in networks.

In this talk, I will discuss how distributed storage capabilities and centralized processing lead to modern compression techniques and network architectures. In particular, I will focus on two key architectures for future networks: cache-aided networks and cloud radio access networks. I develop theoretical frameworks to capture the new challenges and opportunities in these networks, devise communication strategies that improve the performance by establishing cooperation among the distributed nodes, and prove performance guarantees. I will conclude by outlining interesting research questions that future networks will entail as the goal of communication becomes to learn certain information rather than to exactly reconstruct the entire data.

Bio:

Shirin Saeedi Bidokhti is a postdoctoral scholar at Stanford University. Prior to that she was a postdoctoral scholar at the Technical University of Munich. She received her Ph.D. in Computer and Communication Sciences from the Swiss Federal Institute of Technology (EPFL) and is a recipient of the Prospective Researcher Fellowship (2012) and the Advanced Postdoc Mobility Fellowship (2014) from the Swiss National Science Foundation.