

Communication**I**nformation**L**earning**Q**uantum
Faculty Seminar

Monday Oct. 14, 2019
4-5pm
EEB 248

Speaker:

Salman Avestimehr (USC)

Title:

Coded Computing: A Transformative Framework for Resilient, Secure, and Private Distributed Learning

Abstract:

This talk introduces "Coded Computing", a new framework that brings concepts and tools from information theory and coding into distributed computing to mitigate several performance bottlenecks that arise in large-scale distributed computing and machine learning, such as resiliency to stragglers and bandwidth bottleneck. Furthermore, coded computing can enable (information-theoretically) secure and private learning over untrusted workers that is gaining increasing importance in various application domains. In particular, we present CodedPrivateML for distributed learning, which keeps both the data and the model private while allowing efficient parallelization of training across untrusted distributed workers. We demonstrate that CodedPrivateML can provide an order of magnitude speedup (up to ~30x) over the cryptographic approaches that rely on secure multiparty computing.