ACMS Statistics Seminar

Bayan Saparbayeva
University of Notre Dame

Thursday, May 3
154 Hurley Hall
3:00– 4:00 PM

Communication Efficient Parallel Optimizations Algorithms On Manifolds

We propose some communication efficient parallel optimization algorithms on manifolds. In particular, we present an iterative local estimation algorithms (ILEA) for solving optimization problem on manifolds by providing a surrogate loss function which plays the role of the global loss function in finding the estimator to the true parameter. The algorithm is illustrated through three different examples. The first two are on the estimation the sample means (extrinsic and intrinsic means) of observations on the sphere, where the objective function is either the extrinsic or the intrinsic empirical Frechet function. And, the third one is applied to the Netflix data in a low-rank matrix completion problem where the optimization is over a Grassman manifold. Convergence analysis of the algorithm is also provided.