Sampling Correctors

Abstract:
In many situations, sample data is obtained from a noisy or imperfect source. In order to address such corruptions, we propose the methodology of sampling correctors. Such algorithms use structure that the distribution is purported to have, in order to allow one to make "on-the-fly" corrections to samples drawn from probability distributions. These algorithms may then be used as filters between the noisy data and the end user. We show connections between sampling correctors, distribution learning algorithms, and distribution property testing algorithms. We show that these connections can be utilized to expand the applicability of known distribution learning and property testing algorithms as well as to achieve improved algorithms for those tasks. Warning: This talk contains more questions than answers...

Joint work with Clement Canonne and Themis Gouleakis.