

How to Estimate the Mean of a Random Variable?

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Given n independent, identically distributed copies of a random variable, one is interested in estimating the expected value. Perhaps surprisingly, there are still open questions concerning this very basic problem in statistics. In this talk we are primarily interested in non-asymptotic sub-Gaussian estimates for potentially heavy-tailed random variables. We discuss various estimates and extensions to high dimensions. We apply the estimates for statistical learning and regression function estimation problems. The methods improve on classical empirical minimization techniques.

This talk is based on joint work with Emilien Joly, Luc Devroye, Matthieu Lerasle, Roberto Imbuzeiro Oliveira, and Shahar Mendelson.