ID de Contribution: **10**   Type: **Non spécifié**

Unbiased estimation of smooth functions. Applications in statistic and machine learning

mercredi 19 juin 2024 14:00 (1 heure)

Given a smooth function f, we develop a general approach to turn Monte Carlo samples with expectation m into an unbiased estimate of f(m). Specifically, we develop estimators that are based on randomly truncating the Taylor series expansion of f and estimating the coefficients of the truncated series. We derive their properties and propose a strategy to set their tuning parameters – which depend on m – automatically, with a view to make the whole approach simple to use. We develop our methods for the specific functions f(x)=log(x) and f(x)=1/x, as they arise in several statistical applications such as maximum likelihood estimation of latent variable models and Bayesian inference for un-normalised models. Detailed numerical studies are performed for a range of applications to determine how competitive and reliable the proposed approach is.

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Classification de Session: Exposé long

Classification de thématique: Exposés longs